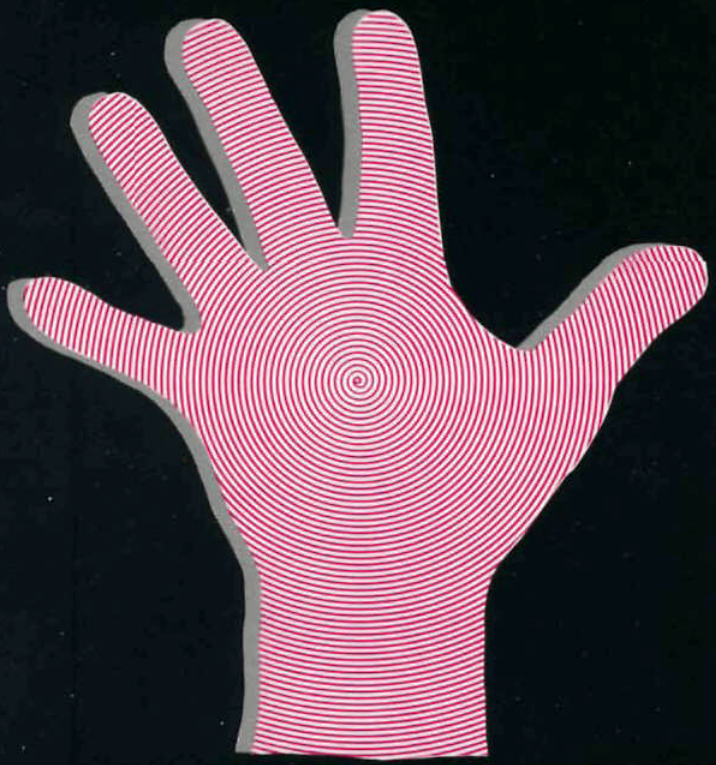
the Skeptical Inquirer

PALMISTRY: SCIENCE OR HAND-JIVE?



SRI GELLER TEST / LOCHNESS TREE TRUNK / A PILOT'S UFO WHY SKEPTICS ARE SKEPTICAL

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the Skeptical Inquirer

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News and Comment

Cambridge Centenary of Psychical Research: Critics Heard, Encouraged to Cooperate

One hundred years after a group of Cambridge scholars inaugurated the scientific investigation of things that go bump in the night, the question of whether there *are* things that go bump in the night remains an open one. "It is a measure of our failure that the controversy still exists," John Beloff admitted in his presidential address to the Centenary Jubilee Conference of the Society for Psychical Research (founded 1882) and the Parapsychological Association (founded 1957), which met, quite appropriately, in Trinity College, Cambridge, from August 16-21, 1982.

It is typical of the ambiguous feelings the "paranormal" arouses even among the members of the parapsychological community that the case for skepticism became one of the dominant themes of the occasion.

Card-carrying critics, such as Christopher Scott, Ray Hyman, Marcello Truzzi, James Randi, and Piet Hein Hoebens, presented papers or otherwise contributed to the discussion, but (presumably to the chagrin of dogmatists on both sides) they were by no means the only ones to argue for extreme caution in accepting evidence for "psi" at face value. Indeed, Brian Inglis, editor of a series of books published on behalf of the SPR and a determined believer in the unbelievable, complained about the "disease" of skepticism infecting his fellow psychical researchers. He had cause for complaint. British parapsychologist Susan Blackmore dropped a little bombshell by announcing what amounted to a conversion to skepticism. For years, she has tried to catch a glimpse of the occult, but "whenever I started to look into psi seriously, the evidence started to disappear." Her present work, she said, is concerned with identifying the nonparanormal factors that could account for the persistence of paranormal beliefs. It is a healthy sign that Dr. Blackmore was not instantly excommunicated.

To the contrary, many of the leading parapsychologists at the Cambridge conference expressed themselves unambiguously to the effect that, given the present unsatisfactory state of the evidence, skepticism remains a rational and valid option. What is more, they indicated that they would welcome closer cooperation with the critics in examining the evidence and in designing better experiments. Ray Hyman, a member of the CSICOP Council and the new occupant of the Stanford University "spook chair," cast a cool eye on the celebrated "Ganzfeld" experiments, where ESP subjects are placed in a state of sensory depriva-

tion—presumed to be psi-conducive. According to Hyman, there is a strong association between the presence of loopholes and the chances of obtaining significant results. (Similar conclusions, incidentally, were reached by parapsychologists Parker, Wiklund, and Ballard.) Ganzfeld pioneer Charles Honorton disputed Hyman's analysis, but the gratifying outcome of the exchange was that proponents and skeptics agreed to join forces in an attempt to "debug" the Ganzfeld work.

By and large, the visiting critics were favorably impressed, not only with the quality of some of the papers presented, but even more by the parapsychologists' willingness to look at the other side of the psi coin. (On the other hand, the parapsychologists were pleased to discover that at least some of the skeptics are—to quote Cambridge psi-researcher Carl Sargent—"almost human.") Even so, parapsychology remains a bewildering field where scientific sophistication coexists with appalling credulity.

Jerusalem psi researcher H. C. Behrendt presented a film showing "A New Israeli Metal-Bender," Rony M. "There is no reason for doubt," Behrendt pontificated. In fact, the film was an embarrassingly silly affair, showing nothing but clumsy tricks by a second-rate Geller. Parapsychologist John Palmer called the presentation "rubbish"—and requested that he be quoted. Even more embarrassing was the presentation of the so-called SORRAT evidence. In a workshop session (for which the Program Committee disclaims all responsibility), the irrepressible W. E. Cox showed slides, purportedly of miraculous events inside a "minilab" (a sort of fish tank in which various objects are placed to be moved "psychokinetically"). In an uproariously funny film, Tony Cornell of the SPR demonstrated how such marvels could have been brought about by simple trickery. At which point Brian Inglis left the hall, furiously reproaching the audience for laughing at very serious matters.

George Hansen of the Foundation for Research on the Nature of Man (FRNM, the late J. B. Rhine's institute) reported that he and Richard Broughton had attempted to replicate Mr. Cox's experiments in "spirit writing"—

where a sealed letter containing a question and addressed to a third party is placed near a "minilab," disembodied entities obligingly taking care of the answer, the postage, and the mailing! Hansen and Broughton found that the "spirit letters" in their experiment had been tampered with.

On Saturday, August 14, the *Times* of London reported the rumor that James Randi, who had submitted a paper at the conference, was planning some sort of coup "to prove the SPR and the Parapsychological Association a gullible body of fools." A small panic broke out among the delegates. They had not needed to worry. Randi's contribution (on the proper methods to test "metal-bending") was generally praised as an example of constructive criticism.

Yet, if we were reminded of E. J. Dingwall's words, written in 1926, "The study of occultism has so odd an effect on the human mind that even after a few years, when the conviction of the reality of supernormal phenomena has become fixed, the most transparent deceptions are gravely cited as marvels of mediumship," the parapsychologists themselves (or at least a number of them) must be blamed.

From the point of view of public relations, the staging of two "metal-bending parties" on the hallowed grounds of Trinity College was a disastrous lapse. "M-B parties" are said to be the latest craze in the Washington, D.C., area. Guests are handed spoons and forks, are exposed to a peptalk, are instructed to yell "Bend! Bend! Bend!" and then proceed to ruin the cutlery they hold in their hands. The idea, I gather, is that the physically applied force accounts for only *part* of the bending—the residue being attributed to psi. Initially, I had assumed that the party in Cambridge was intended as a joke. I was amazed to discover that many of the participants took this preposterous business quite seriously. One visitor actually fainted upon having twisted his spoon. Another told me that she had heard a paranormal "voice" telling her that the metal had become soft. Yet another reported having felt a mysterious "energy." I, too, was handed a spoon, and bent it effortlessly. Never will I forget the spectacle of a certain PA member who, jumping up and down with excitement, exclaimed that, yes, even skeptics could do it. Of course we can, if we may use our hands!

The next morning, while bewildered charwomen were cleaning up the mess, several parapsychologists of the more serious variety implored me to make plain to the readers of this journal that they were horrified by this sudden relapse into the crudest form of Gelleritis.

Their disclaimers indeed deserve to be reported. There may be a farcical side to psychical research, but at least there are influential parapsychologists who, while maintaining some sort of belief in the unknown, have successfully resisted the temptations of unreason.

—Piet Hein Hoebens

Piet Hoebens is an investigative journalist for the Amsterdam daily De Telegraaf. *He frequently reports and writes on parapsychology.*

The Parapsychology Controversy in China

Can some people read another person's mind at a distance? Manipulate objects without touching them in any way? Sense colors or shapes through their hands or feet or ears? The possible existence of paranormal powers was first raised among European scientists

more than a century ago. Over the past two years the question has been hotly debated in China.

On March 11, 1979, the *Sichuan Daily* published an article about 12-year-old Tang Yu from Dazhu county, Sichuan province, who claimed to be able to read written material with his ears. Soon similar cases were being reported from other parts of the country, and scientists, medical experts, and educators began to give their opinions.

The *People's Daily*, in May 1979, was the first to criticize the "ears can read" report as ridiculous and unscientific. It also carried a piece by a distinguished educator who dismissed the claims as sheer fantasy not worth refuting. The newspaper followed up by carrying a report from the Sichuan Medical College that Tang Yu was simply playing tricks like a magician, and the issue seemed about to die.

But many people who had seen demonstrations were not convinced. They preferred to believe what they saw with their own eyes, and did not think a boy so young could fool them so cleverly. People kept uncovering phenomena that they claimed could not be explained by present-day science, and reports continued to be published.

In August 1980 a forum on parapsychology was sponsored by the Chinese monthly journal *Nature* in Shanghai with participants from more than 20 colleges and medical and scientific research institutions. Twelve children claiming to have paranormal powers gave demonstrations of "reading" letters or figures with their hands, feet, ears, noses, and even armpits. A number of observers took the demonstrations very seriously. A few colleges and universities established research groups on the subject. Some scientists considered that a major scientific breakthrough had been made, and

preparations got underway to establish a National Society of Human Body Science.

The January 1981 issue of *China Reconstructs* reported on the debate. It carried an article citing the interest in paranormal phenomena, but also expressing the skepticism many people still felt about the authenticity of many of the demonstrations.

In May 1981 a second forum on the subject was held in Chongqing, Sichuan province. Some scientists made presentations linking paranormal powers with the theoretical basis of traditional Chinese medicine, and argued that such powers were no mystery but part of an advanced scientific understanding of the functions of the human body. Reports were given on what were stated to be cases of mind-reading at a distance, of seeing through solid objects, and of remote control of another person's actions.

Nevertheless, a number of scientists continued to express doubts, calling "parapsychology" a pseudosci-

ence. They pointed out that the evidence of one's own eyes is not necessarily true without further investigation and analysis and that some people are rather gullible and easily duped.

In October 1981 the State Science Commission set up a special group to study the phenomena. The group undertook detailed investigations of the claims conducted under scientific conditions and began to issue materials, including reports showing that many of the cases were based on deception.

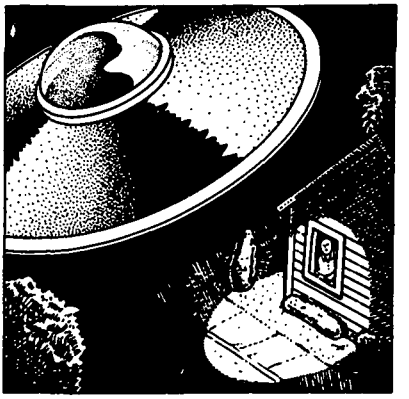
The Chinese Academy of Sciences sponsored a public hearing in February 1982. The reported cases were analyzed, and the great majority of them shown to be unfounded. Credulous belief in paranormal powers was criticized. The day after the hearing, February 25, *People's Daily* summarized criticisms made, reviewed the news coverge of the past several years, and said that in its opinion there was no solid evidence for the existence of paranormal powers. Nevertheless, the debate goes on in scientific and lay circles, and experimentation continues regarding what has become a highly emotional issue.

Reprinted by permission from the June 1982 issue of China Reconstructs *magazine, Beijing, China.*

NOVA's Look at UFOs

The NOVA science series telecast an hour-long critical examination of the UFO question over Public Broadcasting System stations in the United States on Oct. 12, 1982, as the first NOVA television program of the fall season. "The Case of the UFOs," produced by John Groom of the BBC, was a perceptive look at UFO-related issues and several prominent UFO cases.

Among the cases examined were several that SKEPTICAL INQUIRER readers are familiar with: the Warminster, England, UFO hoax; perpetrated by an English physicist as a way of calibrating the acumen of UFO believers (*SI*, Spring 1980); several notorious claims that astronauts have seen "UFOs" (Fall 1978); and the Travis Walton case in Arizona (Summer 1981). The program also had a lengthy segment on the New Zealand lights of Dec. 31, 1978, and a shorter one on the Oslo, Minnesota, police car "UFO encounter." James Oberg and Philip J.



NOVA

Klass of CSICOP's UFO subcommittee and Allan Hendry of the Center for UFO Studies each appeared several times in the program.

Scientist Michael Persinger discussed how stimulation of the brain's hypothalamus can produce profound-seeming "visual" experiences and even alter memory. U.S. Geological Survey scientists showed how rocks breaking under enormous strains can produce luminescent balls of plasma, which Persinger feels may be an explanation of some UFO-lights phenomena. Another segment on photo analysis revealed how photos were found to be faked.

The program managed to treat

UFO claims in a hard-nosed, scientific, investigative manner while at the same time avoiding personal criticism of those who may have honestly reported sightings they didn't understand. It was a laudable treatment, reminiscent of earlier NOVA programs on von Däniken's claims and on the Bermuda Triangle. The BBC and NOVA deserve praise for such refreshing scientific (yet still entertaining) approaches.

—K.F.

Allison and the Atlanta Murders: A Follow-up

The police of Atlanta, Georgia, are apt to think twice before calling in "psychics" in the future. They yielded to public pressure in 1981 following an appearance on the Phil Donahue Show by Dorothy Allison, the flamboyant seer who claims endless successes in identifying murderers and locating missing children—both dead and alive. Allison had assured them that she would perform to her usual standards in helping them with the shocking series of child murders there. Unfortunately, she did just that, and failed miserably—as did other, less publicized "leading psychics" (*SI*, Fall 1982, p. 12).

It was a fiasco in every respect. Arriving with her usual police escort from Nutley, N.J., Allison proceeded to "showboat" around town—to quote one official there—and posed for every camera in sight, declaring her total control of the situation. TV viewers around the world were told that she had identified the murderer, then that there was more than one killer, one of them perhaps black, etc. After a great deal of this nonsense, she returned to Nutley. Everyone sat back to see the murderer apprehended as a result of her talents.

Soon after, because of dedicated police work, a suspect was arrested, tried, convicted, and sentenced. And Allison fell strangely silent.

Following up, I discovered that Atlanta officials were not at all eager to talk about Allison, and it was some time before I learned the truth about what had actually happened. When a Sergeant Gundlach was asked about Dorothy Allison, he snorted that "that wacko broad" had given them some 42 possible names for the murderer(s) but not the correct one. "She rode around in a big limousine, ate real well for three days, then went home," said Gundlach.

Allison's performance in this case pretty well matched others she had given all over the United States during her career as a "psychic detective." She told police a great deal, none of which was of any use. Some of what she said was already known and available; some was pure guesswork, and was wrong. The media jumped at her every move and word, and then dropped her when she proved a failure. But you can be sure that, when she is again called upon to declare wonders, her picture will be seen everywhere and her record will once again be conveniently forgotten.

—James Randi

Newspaper Horoscopes: Show of Inaccuracy

One of the main ways that people learn about astrology is through newspaper horoscopes. Recently, the Canadian CTV consumer show, "Live It Up" (July 15, 1982) tested the accuracy of newspaper horoscopes. (See also, *SI*, Spring, 1980, p. 13.) Twelve people were asked to keep a diary of what happened to them over a period of one week. They were then given horoscope readings for those days by four anonymous astrologers. The task of the

individuals was to compare what happened each day with the predictions of the astrologers according to the following scale:

0 = Not close
1 = Slightly accurate
2 = Some accuracy
3 = Quite accurate
4 = Bang on

This means that a perfect score would be 12 (people) x 4 (perfect score) points x 7 (days) = 336 points. After the scores were tallied, the names of the astrologers were revealed and their total scores were:

Live It Up "astrologer"	= 112
Jeane Dixon	= 101
Bernice Osol	= 91
Sydney Omarr	= 88

The Live It Up "astrologer" was a set of fake daily horoscopes compiled by the "Live It Up" staff. These horoscopes were an imaginative mixture of fortune-cookie wisdoms, good advice, and random material taken from past columns by astrologer Bernice Osol.

An entertaining demonstration of the invalidity of newspaper horoscopes!

—I. W. Kelly

Professor Kelly is a developmental psychologist at the University of Saskatchewan.

Berto, the Blind Horse: Clever, But Not Cueless

One of the four items in the "Significa" column of the June 13, 1982, *Parade*, the national Sunday newspaper magazine supplement, was entitled "The Amazing Calculating Horses." It recounted the famous cases of Clever Hans and Muhamed, two horses that performed in Germany in the early part of the century. For a long while their ability to tap out with their feet the correct answers to mathematical problems and other questions had experts thinking the horses possessed some astonishing mental capacities.

Clever Hans, pawing with his hooves, could supposedly add, subtract, divide, do fractions, square roots, and even spell and form sentences using a special tapping code. Experts were stumped until psychologist Oskar Pfungst showed in a series of exhaustive and elegant tests published in 1911 that the horse was responding to involuntary movements of the person questioning him. Most people were not aware that they raised their head slightly when the proper number of paw taps had been completed. Pfungst even showed that people—even he himself—had trouble *not* giving such involuntary cues, even when they tried very hard not to.

Serious scholars have since agreed that these visual cues, quite subconsciously rendered, fully explain Clever Hans's seemingly remarkable powers. Psychologists now refer to this kind of cueing as "the Clever Hans phenomenon."

Some other famous "calculating" horses in Germany at that time, including Muhamed, were also shown to be responding to cues. But in each of these cases it was conclusively demonstrated that the horse's groom was intentionally giving visual signals, usually from a position within the horse's view but out of view of witnesses. Here deliberate fraud was (and is) the accepted verdict.

But what about Berto, the blind horse? Berto was one of five horses, including Hans, that manufacturer Karl Krall obtained in 1909 upon the death of their previous owner. Berto, it was said, was blind but could perform

like the others. The account in *Parade's* "Significa" column (which is written by Irving Wallace, David Wallechinsky, and Amy Wallace of *People's Almanac* fame/notoriety) suggested that Berto demolishes Pfungst's theory: "Berto, was blind but could perform like the others—thus dashing Pfungst's theory of visual cues. Despite all the neigh-saying, no one could prove that the five horses were a hoax."

This comment echoed a similar one by Nicholas Wade at the conclusion of his article in the June 20, 1980, *Science* magazine on a New York Academy of Sciences symposium on the Clever Hans phenomenon. It is not exactly right.

Pfungst's explanation of visual cueing stands as strong as ever for Clever Hans. Psychologist Ray Hyman has called Pfungst's report on these tests *the* classic debunking book. But surely Berto couldn't have been responding to such cues? Thomas A. Sebeok, chairman of the Research Center for Language and Semiotic Studies at Indiana University and an expert on claims of such animal abilities, was asked by the SKEPTICAL INQUIRER to clarify the matter.

Sebeok responded that Berto very likely had three modes of cueing available to him. For one thing, he points out, there exists no solid proof whatsoever that Berto—as has always been taken for granted—was completely sightless. For that, we have only the word of Krall and his employees and associates. Krall, says Sebeok, was easily deceived. Albert Bühren, the horse's trainer (who was also Muhamed's trainer), was, it is now known, a brilliant trickster and an illusionist (as well as a lightning-fast calculator). Sebeok considers it likely that Berto had at least some degree of peripheral vision.

Second, acoustic information channels were readily available. Auditory cues that cannot be heard or recognized as such by untutored human bystanders can easily be picked up by horses, notes Sebeok. And it is known that Berto had exceptionally acute hearing. Third, tactile cues were very probably also used. In fact, a book published in German by Stefan von Maday in 1912 gives a rich review of the tactile mode of information transmission, with particular reference to Berto. Horses, of course, are conditioned to be highly sensitive to subtle tactile cues; they do "read the mind" of their rider in a real sense via pressure of the bit and the rider's subtle muscle tensions and relaxations.

The evidence points to the probability that Bühren, Berto's groom, was intentionally giving the horse cues, says Sebeok. Four separate witnesses have testified to Bühren's presence during such demonstrations, although Krall often tried to disguise that fact.

A noted Danish conjurer named Faustinus Edelberg was allowed to observe Berto for a short time. He reported in 1915 that, for example, when he stated a problem for Berto loud enough for Bühren to hear it from outside the stable, the horse tapped out the correct answer. If Edelberg inscribed the problem on the horse's skin but did not state it within Bühren's hearing, he could not obtain any answers. Once he wrote the numeral "4" on the horse's flank and then pretended to write "+3" also; in actuality he wrote the +3 in the air so that the horse could not feel it but it would appear to Bühren as if he could. The correct answer of "7" was given. Inevitably when Bühren was within sight or hearing, Berto was correct. On the occasions when he was wrong, Edelberg found out later that Bühren had been called away or distracted. Once, when Berto suddenly began giving right answers after a long period of senseless responses, Edelberg abruptly threw open the stable gate and found Bühren lurking behind it.

Unfortunately, Edelberg was unable to discover exactly how Bühren was cueing the horse before Krall expelled the magician for "undue skepticism." (Certain modern-day magicians will find this ringing a familiar bell.) No further tests were done, so nothing was ever absolutely proved. But the circumstantial evidence is strong, concludes Sebeok, that Bühren was giving Berto the answers.

So the "calculating" horses of early twentieth-century Germany, Berto among them, couldn't really do arithmetic. But of course that shouldn't blind us to the fact that they were indeed clever nevertheless. As Lewis Thomas recently observed ("On Clever Animals," *Discover*, September 1982), referring in this case to Clever Hans, "The record shows that he was considerably better at observing human beings and interpreting their behavior than humans are at comprehending horses, or, for that matter, other humans."

—Kendrick Frazier

California Superquake: Psychics' Long Fizzle

It is informative indeed to check up on the confident predictions made by self-proclaimed psychics. Supermarket tabloids never seem to show any interest in such projects; though they give headlines to the seers when they make the prognostications, we never get a scorecard to consult afterwards. If you consider the rash of very colorful and dire earthquake predictions that were made for the state of California in the past few decades, you have an excellent cross-section of the accuracy of the prophets.

Edgar Cayce was one seer who foretold catastrophes aplenty. He said, in 1941, that Los Angeles and San Francisco would be destroyed by earthquakes sometime before the destruction of "most of New York City" in 1971. (Later he changed the date to "before 1978.") He also told believers that an "Atlantean" island he called "Poseidea" would rise from the Atlantic in 1968 and 1969, and portions of South Carolina and Georgia would sink, all these wonders serving as signs that the West Coast calamities were about to occur. Needless to say, none of them came about, but Cayce-followers were hardly fazed. They are, in a word,

unfazable.

Far safer was the claim of "cataclysmologist" Chan Thomas, who declared in his book *The Adam and Eve Story* that Los Angeles and San Francisco would succumb to "an unbelievable mountain of Pacific sea-water . . . as if they were but grains of sand."

Why Psychics Like to Predict Earthquakes

Earthquakes are a natural for "psychics." Earthquakes are so frequent that as long as the psychic keeps the prediction suitably vague he or she is bound to be right at some point. Here, from the U.S. Geological Survey's *Earthquake Information Bulletin*, is a table of the expected yearly world incidence of earthquakes, by magnitude.

Earthquake Magnitude and Expected World Incidence

Type of Shock	Magnitude	Average No. Each Year
Great	8 or more	1.1
Major	7 to 7.9	18
Large (destructive)	6 to 6.9	120
Moderate (damaging)	5 to 5.9	1,000
Minor (damage slight)	4 to 4.9	6,000
Generally felt	3 to 3.9	49,000
Potentially perceptible	2 to 2.9	300,000
Microearthquake (imperceptible)	Below 2	600,000+

Seismologists have been warning for years now that a major quake somewhere along the San Andreas fault system in California is long overdue. This does not constitute an earthquake *prediction*. Geophysicists consider an earthquake prediction to be the specification of the place, time, and magnitude of an earthquake within sufficiently narrow limits to permit short-term and long-term actions to save life and property. Psychics bind themselves to no such constraints. The only certainty is that, when the expected great California earthquake does happen, almost every psychic in the world will claim to have "predicted" it. The only scientific study of the accuracy of earthquake "predictions" found those made by psychics and astrologers even less accurate than "predictions" generated by a computer's random-number generator (*Earthquake Information Bulletin*, 10, no. 3, 1978, summarized in Spring 1979 *SI*).

—*K. Frazier*

However, Thomas is careful to place his disaster "during the next polar shift"—and sets that occurrence somewhere between the year 2000 and 2500. He was able to assume that he would be safely in his grave by then and unavailable for comment.

Cayce fans might reflect that Thomas flies in the face of their hero, who not only sees Los Angeles and San Francisco deluged much earlier but sets his "polar shift" (a "noncataclysmic" one, you'll be relieved to know) between 1998 and 2000. Surely there is an appropriately mysterious reason for these two great occult figures to have disagreed, or is that itself merely an illusion awaiting further explanation for us puzzled laymen?

Psychic Joe Brandt received a vision of the destruction of California, early in the 1960s. But he said he couldn't be 100 percent sure of the date. "It looked like 1969" he said, "I wasn't sure. My eyes weren't working just right."

"Doc" Anderson, known as "The Georgia Seer," made us sit up at attention in 1969 by predicting "the most powerful quake ever recorded in history" centered "near Los Angeles and San Francisco" sometime before 1979. Added Anderson, ". . . it will center along the San Andreas fault line." How perceptive.

Never one to be caught out on a limb, the Reverend Neal Frisby of Phoenix, Ariz., warned that California's "last major earthquake could happen between 1972 and 1977."

Irene Hughes, hastening to get in on the attention, gushed of "devastating earthquakes for California in 1976."

In 1971 no less an authority than *Search* magazine carried the prophecy of John Dombrowski that between 1972 and 1976 ("very definitely before 1976," he insisted) San Diego, San Francisco, Los Angeles, Santa Barbara, and "much of the California coastline will become a feeding ground for sharks."

Jeane Dixon, the unsinkable rubber-duck of prophecy, told *National Enquirer* readers in 1968, "I predict a mammoth earthquake on the West Coast . . . But it won't happen for about seven years." That should put it at about 1975. But hold on, fans! Didn't Dixon also tell *Enquirer* readers back in 1964 that there would be a "great California quake in 1965 or 1966"? What happened to that one? Or both of them, for that matter?

Though it's hard to believe that anyone actually takes Criswell seriously, we must note that he told the world in 1968 that "the strongest earthquake in the history of the U.S. will virtually wipe out the city of San Francisco on April 7, 1975 . . . There will be more than 25,000 persons killed in this earthquake . . . and the mountains will

crumble into the Pacific."

These are only a few of the more prominent characters who are on record as having predicted that the Great California Earthquake would happen sometime before 1982. There are dozens more, and all share a common quality: They were all wrong.

—James Randi

The Father of UFOlogy, the FOIA, and the FBI

Although private pilot Kenneth Arnold ushered in the "UFO Era" with his June 24, 1947, report that he had spotted nine disc-shaped objects while flying near the Cascade Mountains in the Pacific Northwest, the title of "Father of UFOlogy" rightfully belongs to Donald Keyhoe, a retired Marine Corps officer. It was Keyhoe's article in the January 1950 issue of *True* magazine, claiming that the U.S. government was covering up evidence that UFOs were extraterrestrial craft, that would set the pattern for UFOlogy's future claims and stance.

When Congress passed the Freedom of Information Act in the mid-1970s, UFOlogists were among the first to exploit the resulting access to once-classified documents, expecting they would reveal the long-claimed government coverup, or what one UFOlogist (Stanton Friedman) has called "a Cosmic Watergate." UFOlogists were both surprised and disappointed, for the many hundreds of papers released by the CIA, the FBI, and the Pentagon failed to reveal a "smoking gun."

The FOIA request to the FBI for all of its UFO files did turn up a letter that provides useful insights into the Father of UFOlogy's reputation within the FBI for accuracy on other matters. Portions of the letter, dated September 26, 1958, from one FBI official to another are as follows:

> Keyhoe has been known to the Bureau since 1935 and was, and may still be, a free-lance writer. In 1948 he was described by Mr. Nichols as "a flamboyant writer and we have found from previous experience that much of his material is irresponsible." In 1951, the Director [of the FBI] concurred with Mr. Nichols' statement that "We should not get involved with him."
>
> As an example of his writing, the January, 1941, issue of *Cosmopolitan* magazine carried an article written by Keyhoe and John J. Daly, entitled "Hitler's Plan to Seize the United States Merchant Marine." This article indicated the Bureau had in its possession documents concerning such a plan by Hitler, *which indication was completely false.* [Emphasis added.]

This FBI letter was prompted by an inquiry from Keyhoe asking such questions as, "Have FBI agents told witnesses not to talk about UFO sightings?" The several thousand UFO-sighting reports in the public domain at the time Keyhoe made his inquiry would have seemed to have answered his question, or at least indicated that the public was not even slightly intimidated by the FBI.

—Philip J. Klass

Wyoming UFO-Contactee Runs for Governor

The gubernatorial race in Wyoming was an interesting, if not unusual, race: one of the candidates was the much exploited UFO-contactee Pat McGuire. A rancher near Laramie, McGuire had previously been featured on the "That's Incredible" TV program and in the *National Enquirer.* Under the guidance of Leo Sprinkle, a psychologist at the University of Wyoming who uses hypnotic regression to discover UFO

contactees, McGuire had revealed that alien beings had visited him on several occasions. During one such visitation, the aliens told McGuire where to dig a well. The resulting "miracle well," according to reports, produces tremendous amounts of water in a region where surface water is scarce.

Not unexpectedly, McGuire inserted his extraterrestrial guidance into his campaign. According to AP dispatches appearing in the *Casper Star-Tribune* and the *Rock Springs Rocket-Miner*, McGuire claimed to have received a message from his alien mentors stating that "alien beings are using him to warn the Soviet Union and other countries against intervening in Israel's invasion of Lebanon." According to McGuire, said one report, the aliens "picked him up" to give him the message and apparently warned that any such interference would result in their intervention "no matter what the destruction needs to be." It appears as though the earth is on the verge of intergalactic conflict.

A fellow Democrat, a member of the Wyoming legislature who wished to remain anonymous, stated to this writer, "Why does he have to be a Democrat?" Those who followed McGuire's campaign were hopeful that if he was elected he might use some of the state's mineral royalties to create the world's first intergalactic spaceport on his ranch—complete with appropriate immigration and customs officials.

Unfortunately, these dreams will have to wait. In the Sept. 14 Democratic primary, McGuire polled only a little more than 8,000 votes, losing out to the incumbent Democratic governor by 38,000 votes. According to one news account, his "low-key" campaign was the cause of his poor showing.

McGuire's contacts with the aliens have been and continue to be frequent. Visitors to his ranch in Albany County have reported that he points out distant flying saucers on a daily basis. In fact, so frequent are his alien visitations that his entire family reportedly takes them for granted. Visitors (the earthly kind) have not had the opportunity to see the supposed saucers at close range or in a photograph, apparently a consequence of the aliens' camera-shyness and fear of strangers.

Sprinkle did not publicly enter the "McGuire for Governor" campaign—perhaps in an effort to maintain a more conservative scientific stance. He did, however, conduct another of his annual conferences this past summer. He had featured McGuire in an earlier conference that had attempted to contact the aliens telepathically by transmitting the participants' thoughts to a medium in Czechoslovakia, who then beamed the thoughts into outer space. According to Sprinkle, the purpose of the 1982 conference was to bring people with common experiences together for scientific and objective study. Questioned on the reliability of hypnotic regression,

Sprinkle responded that he recognized the possibility of flaws "but it's the only tool we have. . . . I have decided that I would rather be a 'fool' investigating these interesting experiences, rather than be a 'fool' who is not investigating. Either way I can be perceived as a fool . . ."

—*Lee Roger Taylor, Jr.*

Lee Taylor teaches at Western Wyoming College, Rock Springs.

Graphotherapy: Close That Loop, Raise That Crossbar

A new unscientific, unproven, we-can-improve-your-personality bit of mysticism is emerging on the current scene. I hereby predict that it will blossom and gain wide acceptance.

"Graphotherapy" is the name of the new game. It was featured in the *National Examiner,* May 25, 1982, in an article entitled "Change Your Life by Changing Your Handwriting." If people take advantage of you, practice closing the loops on your written "t," "d," and "s." Your self-esteem is directly related to the height of the crossbar on your "t"; if you wish to raise your self-image, raise the crossbar. There are also writing exercises to practice to become more relaxed, more intelligent, and so forth.

The pundits of graphotherapy hasten to point out that this process takes time—about a year—and that it requires the professional guidance of a graphotherapist.

Graphotherapy is bound to flourish. It contains three of the key ingredients of virtually every such discipline that has survived the ages:

1. It has the appearance of logic and science—at least to the illogical and nonscientific. After all, if your personality is reflected in your handwriting, as has been asserted for centuries by graphologists, then certainly a conscious change in one will cause a change in the other.

2. Its program contains all the elements of a self-fulfilling prophecy.

3. Based upon its totally subjective elements, and with the many elusive shifts of ground available to its purveyors, it will appear to be unmeasurable and untestable by science. Testimonials will be its forte.

And so the centuries-old tried-and-false nonscience of graphology has given itself a graduate degree: it will now masquerade under the banner of graphotherapy.

—*Robert A. Steiner*

Robert Steiner is a magician and chairman of the Bay Area Skeptics.

Moon May Be the Son

The Reverend Sun Myung Moon, sentenced in July to 18 months in jail for income-tax evasion, is just full of surprises. During the recent trial of a deprogrammer—who was being sued by a Moonie, the 62-year-old Korean cult figurehead was coy when asked if he was the True Messiah. He told the court that he had "the potential of becoming the true messiah," but referred them to his church members for the final answer of whether or not they believed he was such a holy personage.

But Moon went on to tell the audience in the New York City courtroom that he had frequently spoken with Moses, Buddha, and Jesus Christ. Conveniently for the Reverend, these famous folks spoke to him in Korean—he speaks no English.

Moon assured the court that he knew it was Buddha he spoke with,

because he recognized him from temple statues, and he recognized Christ "from his picture."

—*J. R.*

Committee to Be Formed in Sweden

In Sweden, an organizing committee has issued an invitation to found an organization for "science and popular education." Journalists and illusionists are among the ten initiators, who also include representatives of the fields of psychology, philosophy, the history of ideas, sociology, physics, and pedagogics.

In its announcement the committee referred to strong antiscientific and pseudoscientific trends in Swedish society. "There are those who say nothing should be done about this, since it is not dangerous. We do not share this opinion. Pseudoscience is dangerous when it entices people to quackery instead of competent medical care. Mysticism is dangerous when it makes use of human weaknesses to drag people into positions of authoritarian dependence. Distrust in science and reason is in the long run dangerous to democracy, since democracy depends on respect for human reason."

The committee expects that this skeptical organization will be formed by the end of 1982. There is no lack of material for debunking, it said. The address of the organizing committee is c/o Sven Ove Hansson, Malmv 11, 191 61 Sollentuna, Sweden.

—*Sven Ove Hannson*

Science as Human Enterprise

I believe that science must be understood as a social phenomenon, a gutsy, human enterprise, not the work of robots programmed to collect pure information. I also present this view as an upbeat for science, not as a gloomy epitaph for a noble hope sacrificed on the altar of human limitations. Science, since people must do it, is a socially embedded activity. It progresses by hunch, vision, and intuition. . . . Facts are not pure and unsullied bits of information; culture also influences what we see and how we see it. Theories, moreover, are not inexorable inductions from facts. The most creative theories are often imaginative visions imposed upon facts; the source of imagination is also strongly cultural. This argument, although still anathema to many practicing scientists, would, I think, be accepted by nearly every historian of science. In advancing it, however, I do not ally myself with an overextension now popular in some historical circles: the purely relativistic claim that scientific change only reflects the modification of social contexts, that truth is a meaningless notion outside cultural assumptions, and that science can therefore provide no enduring answers. As a practicing scientist, I share the credo of my colleagues; I believe that a factual reality exists and that science, though often in an obtuse and erratic manner, can learn about it.

—Stephen Jay Gould, in *The Mismeasure of Man* (W.W. Norton, 1981)

Psychic Vibrations

Newspaper, radio, and TV commentators had a field day when it was reported that a woman in Chicago burst into flames while walking down the sidewalk on August 5, 1982. "Woman Erupts in Flames," read a typical newspaper headline. "Spontaneous human combustion considered in death," read another. The popular nationwide radio commentator Paul Harvey recounted the incident as a great mystery, then gleefully launched into a description of other cases of alleged "spontaneous human combustion" going back many years. However, when the matter was actually *investigated,* a wholly different picture emerged. Dr. Robert Stein, the Cook County Medical Examiner, said that the woman, whose skin was scorched but whose organs and bones were intact, had been dead about twelve hours before she was found. Furthermore, clothing doused with gasoline had been found under the body. Stein, who said he had received dozens of phone calls from around the world since the body was found, claimed that the accounts of "spontaneous human combustion" were "fairy tales."

* * * * *

The *good* news is that phrenology, the qūaint nineteenth-century doctrine of reading a person's character by the shape of his head, has been all but totally discarded by modern-day thinkers. The *bad* news is that we now have "personology," a quaint twentieth-century doctrine of reading a person's character by the shape of his eyes, ears, nose, and teeth. Originating in California, personology teaches that the slant of the eyebrows, nose, and jaw determines—even before birth—the kind of person we are likely to become. Some of these characteristics may be racially determined: for example. "Most Chinese have high eyebrows," says one personologist, "which indicates formality." If your teeth turn inward, you are a good person in whom to confide a secret (presumably, anyone

whose teeth slope outward would have a difficult time preventing a secret from sliding out). If you have long earlobes, you are "interested in growing things of the dirt or the spirit." An upward slant of the bottom of the nose indicates credulity. If you wish to know more on the subject, you should contact the Interstate College of Personology in Oakland, California, which can set you up as a fully certified personologist after just *nine* months of study and only $2,000 in tuition. It is likely that one of the school's entrance requirements is an upward-slanting nose.

* * * * *

Meanwhile, across the bay in San Francisco, the Center for Cosmetic Dentistry lures patients with the promise that "teeth are great communicators." The *Wall Street Journal* reports that patients are being told that their place in society is being determined, perhaps even undermined, by their flared lateral incisors and large canines. Some people even undergo oral surgery to put their face "in harmony with [the] body." A traditional dentist dismisses the idea of "cosmedontia," saying, "What we're seeing now is a need to market dentistry. We're in a recession, and San Francisco is saturated with dentists." But the "cosmedontists" insist that cosmetic dentistry can help people advance in the business world as well as improve their romantic life. However, a former official of the California Dental Association believes that the ads claiming that teeth indicate personality traits are "false and misleading."

* * * * *

According to a report in *Fate* magazine, the noted Philippine "psychic surgeon" Tony Agpaoa died recently, at the advanced age of 42. Agpaoa reportedly could pull "diseased" tissue from the body of patients without making an incision and without leaving any scar, although skeptics charged that he was merely practicing sleight of hand. Inexplicably, when Agpaoa became ill, he sought treatment from conventional doctors, and not from other "psychic surgeons."

* * * * *

The latest studies of the remarkable Shroud of Turin reveal that Christ died not of injuries due to crucifixion but of a heart attack, reports the *Seattle Post-Intelligencer.* A study by Luigi Malantrucco concludes that a large spot on the Shroud was caused by blood and serum from a stab wound in the chest. If Christ died of suffocation, he would not have bled profusely when stabbed after death, because the blood would have coagulated. Malantrucco concludes that Christ suffered a heart attack after the Last Supper, in the Garden of Gethsemane, worsened when he was put on the cross, and died soon afterward.

* * * * *

Mr. George W. Meek of Franklin, North Carolina, retired engineer and founder of *Metascience,* recently made the modest announcement of "the greatest breakthrough in 2,000 years." Two-way voice communication with the "so-called dead" has been established, says he, and TV contact is expected soon. Meek, according to a report in the *Chicago Sun-Times,* said that the "dead" had crossed over to another realm where they were prospering (or perhaps failing to prosper) according to their life performance on earth. Meek held a press conference at the National Press Club in Washington, D.C., where

promises to deliver messages to those in "the hereafter," by giving them to a terminally ill person here on earth. For $40, you can send a message of up to 50 words; messages of 50 to 100 words cost $60, a savings of $20. ("Priority" service costs more than twice as much.) The estate of the dying person is paid $10 for each message conveyed to the hereafter (leaving at least 75 percent of the money in the hands of Heavens Union). Approximately 500 messages have been sent skyward thus far, although only four messengers have been used to convey them, all of them Californians. (Gabor's customers can only hope that each messenger can remember the 125 messages he or she has been assigned to deliver beyond the veil.) If your message is not directed to a V.I.P., do not worry: "all spirits are equal" in heaven. Messages intended for souls in hell are not accepted. Heavens Union promises "departure" of your message within one year, or else a full refund. If there is an award for bad taste in money-making schemes, this one should win it.

* * * * *

he played a tape purporting to contain the astral voices of the great English Shakespearean actress Ellen Terry and newspaper publisher William Randolph Hearst. Alas, as fate would have it, on the day of the press conference Meek said no "live" demonstration of discussions with the dead would be possible because the machinery happened to be out of commission.

* * * * *

A perhaps more direct method of communicating with the so-called dead has been devised by Gabe Gabor, founder of a California company known as Heavens Union. As reported in the *Des Moines Register,* this group

When the leading "creation scientist" Duane Gish came to the University of California at Berkeley this past April 9, he found an audience whose sophistication exceeded his worst expectations. Gish and other creationists allege that no transitional fossil forms exist. When an anthropologist produced an example, a skull of *Homo erectus,* Gish declared that the skull was that of a monkey. The anthropologist then produced the skull of a gorilla, to show him the difference; it reportedly took several minutes for the audience to stop laughing. One questioner asked Gish if he learned paleontology from Dr. Seuss. Fred Edwords, a critic of creationism and editor of *Creation/Evolution,* offered to fly to Berkeley from

Buffalo to debate Gish. This offer was declined on the grounds that Edwords had "no scientific training." (Actually, the two had debated two months earlier, and Gish apparently did not want a rematch.) The creationist publication *Acts and Facts* dismissed the whole matter as a "Mob Scéne at Berkeley," attributing Gish's humiliation to the alleged ill manners of his audience rather than to the weakness of his arguments under critical scrutiny.

* * * * *

Some recent articles of note that you may have missed: "Ghosts Yank off My Covers and Tap Dance in My Closet," *National Enquirer*, Aug. 3, 1982. Not to be outdone, on the same date the *Weekly World News* ran "We Live with Bigfoot: 7-foot creature has been their neighbor for 45 years." From *The Examiner*, April 27, 1982: "Killer Sea Monster Still At Large"; the same paper, July 6: "Hitler Is Alive: At age 93, Nazi madman masterminded Argentina's invasion of the Falklands." From *Fate*, November, 1981: "Miracle of the Liquefying Blood: Several times yearly in Naples, Italy, blood of fourth-century martyr bubbles and foams." *Fate*, April, 1982: "The Dragons of Sweden: Encounters with rare 19th-century monsters read like folklore and fantasy—but they are eyewitness reports." And finally: "Mermaids Do Exist!" *National Enquirer*, May 26, 1981.

* * * * *

Parapsychologist D. Scott Rogo tells, in a recent issue of *Fate*, about the remarkable powers of Natuzza Evola, an Italian housewife who can appear in two places at once, diagnose illnesses, and communicate with the dead. However, if you are going to travel to the town of Paravati to see her, you will find that she receives visitors at her "open house" only Monday through Thursday. The reason for this, says Rogo, is that "on Friday she loses her powers."

—Robert Sheaffer

There's a mighty big difference between good, sound reasons and reasons that sound good.

—Burton Hillis

Palmistry: Science or Hand-Jive?

Dermatoglyphics, the 'real' science of palms and fingers, lends little support to the claims of the palm reader, but may suggest their origin.

Michael Alan Park

He sealeth up the hand of every man, that all men may know his work.
—Job 37:7

Length of days is in her right hand, riches and honour in her left.
—Proverbs 3:16

You pay all your bills promptly.
—From the printout of an electric palm-reader

Along with reading tea-leaves and gazing into crystal balls, palmistry—or "Chiromancy"—is surely one of the forms of divination that comes to mind for most of us when "fortune telling" is mentioned. This occult art has become part of our culture, although for most of us it is a fairly benign form of the occult, and more than likely it is something we rarely think about. Palmistry is, however, an old and well-established method of divination and provides a good example of a claimed paranormal phenomenon for scientific examination.

Some of my own research (Park 1979) has been in the field of dermatoglyphics, which is the study of the patterns of ridges and furrows on the skin of the hands and feet—"fingerprints," although these patterns also appear on the palms, toes, and soles. The data utilized by palmists and by those of us in this scientific field of interest are similar, and in fact one area of dermatoglyphic research involves using finger- and palm-print data to "predict" certain aspects of people's lives. Thus we can examine two

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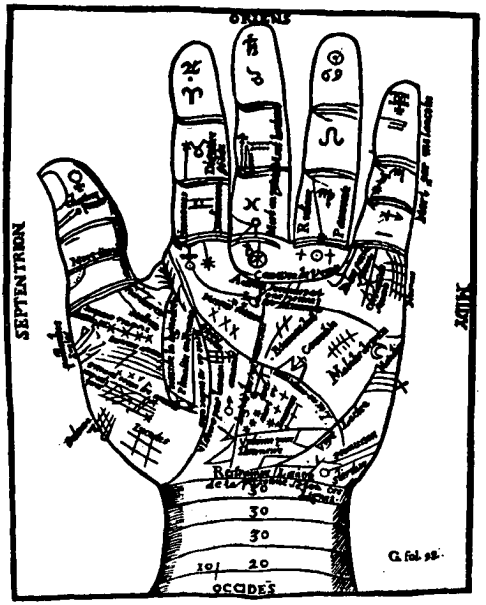
similar activities centered around the same general topic—one occult, the other scientific—to see how they compare in theory, method, and results. It is an opportunity not provided by other methods of divination such as those using tea leaves and crystal balls.

In scientifically examining the various "predictive" arts there are two potential approaches or levels from which one can work. The most straightforward is to examine the predictions and revelations to see if they are, in fact, accurate. This method has some obvious drawbacks. For one, where predictions rather than revelations about personality are involved, the study would necessarily be a long-range one—the lifetime of the individual in fact. Secondly, as in any scientific study, certain controls are needed. Here, for example one would have to control for "self-fulfilling" prophecies: the possibility that the subject takes a prediction or revelation so seriously that, even if subconsciously, he causes it to come true. Especially with such things as personality characteristics and social matters, such self-fulfillment would be easy to bring about and hard to control for in a study. There is also the matter of basing occult insights on data that are not part of that "science." Scars, calluses, and stains on the hands, as well as such factors as mode of dress and speech pattern, can be interpreted a la Sherlock Holmes to "divine" some basic information about an individual as a basis for "revealing" further information. (A simple example: short nails and fingertip calluses on a person's left hand are a pretty good indication of a right-handed stringed-instrument player. From there, revelations concerning "musical talent," "creativity," and so on, would be fairly safe.) In palmistry, this can be taken care of to some extent by using ink-prints of palms rather than living subjects; but even where use of prints is advocated by the palmists themselves (Gettings 1979, p. 32) the necessity of also observing the living hand is made clear.

With predictive arts using tea leaves, crystal balls, tarot cards, and so on, we are usually limited to testing prediction; the relationships claimed by these arts find no analogues in any accepted scientific body of knowledge. As noted, however, the palmist and the specialist in dermatoglyphics are using some of the same data, and much dermatoglyphic research is concerned with the relationships between certain physical traits of the hands and feet and other aspects of individual biology. We can, then, test palmistry on the second potential level, that of examining whether or not there actually are any direct, predictive, specific relationships between the characteristics used by the palmist and any other events or factors in an individual's life that may relate to the kinds of information contained in the palmist's conclusions.

In attempting to define and describe the occult art of palmistry, some difficulty is encountered. There appear to be a number of different versions of the art that claim to be the "real" palmistry. The versions differ in the number of characteristics observed, in the kinds of characteristics



Chiromancy, or palm reading, claims to divine the future by study of the hand. Early interpretations were often corroborated by the predictions of astrology.

observed, in details concerning the classification, nomenclature, and nature of those characteristics, and in the meaning attributed to different expressions of the characteristics. Since it is not my intent to examine palmistry point by point but rather to discuss it more in terms of its general theory, I will attempt to generalize from points that all or most of the versions have in common or to find some sort of "average" statement that seems to fairly reflect them all. I will, however, include in my examination all the types of characteristics used in the most complex form of palmistry I came across, that discussed by Gettings (1979), which uses hand shape and fingerprints as well as the more typical lines and creases.

There seems to be no consensus as to just how old palmistry is. Recognition of individual uniqueness in fingerprint patterns goes back at least to China in the third century B.C., where a thumb-print impression on a pat of clay may have been used for personal identification (Cummins and Midlo 1961). As to palmistry itself, *The Encyclopedia of Occult Sciences* (1939) mentions ancient India and Egypt. In its modern form it can certainly be dated back to publications of the sixteenth century (de Givry 1958). Basically, palmistry is the use of the lines and creases of the palm to discern hidden information about a person's character and in some cases to foretell future events in the person's life. The lines used are not those familiar patterns of the fingertips (which upon close examination can be seen to extend to the palm), but those creases on the palms and inner surfaces of the fingers that become deeper and more defined when we flex our hands. These are in fact formally referred to as "flexion creases" and are described anatomically as "locations of firmer attachment of the skin

to underlying structures" (Cummins and Midlo, p. 37).

These creases are the most important data for the palmist. There are three major lines (called the lines of life, head, and heart) that are almost always present and a number of subsidiary lines that may be absent in some individuals. The characteristics of these lines that are considered by the palmist include: the points at which the line begins and ends; the degree and direction of curvature; length; presence of forks; depth; and presence of a "chained" appearance. The lines are explained in various ways and at various levels of causality—from an astrological "influence of the stars" at birth (*Encyclopedia of Occult Sciences,* p. 150), to the lines as "conductors of energies from one part of the hand to another" (de Givry, p. 198). In any case, they are thought to be an outward manifestation of the inner state of the person possessing them, reflecting aspects of that person's personality characteristics, intellectual abilities, and even physique.

The question of the predictive potential of palmistry—the "fortune-telling" aspect—is not fully agreed upon. More traditional versions, like those discussed in de Givry, for example, accept this capability of the art. The best known example is perhaps the use of the "line of life" to determine an individual's approximate date of death. There are also recognized ways of foretelling such things as number of children, economic success, and other matters of life, and particularly love. More recent versions of palmistry, however, deny that specific events can be foretold. Gettings (p. 26) in fact calls such predictions the palmistry of "charlatans, gypsies, and popular articles in women's magazines." The best palmistry can offer by way of prediction, he says, are indications of "direction and tendencies." At the same time, however, Gettings does admit that on occasion external pieces of information can be arrived at—in one case the name of a subject's boyfriend and the fact that the boyfriend was married. Such information he says is derived "from unknown sources by the emotion" (p. 22), a process he calls "intuitive palmistry." There seems, then, to be some room left for the possibility of a clairvoyant capacity on the part of the palmist being set off by the palmar features. Finally, biologist Lyall Watson, who in *Supernature* (1973) proposes the possibility of a nonparanormal explanation for the connection between internal states and the features of the hands, says that "fortune telling by lines in the hands bears the same relationship to the serious study of [palmistry] as newspaper horoscopes do to true astrology" (p. 192). More on Watson later.

Especially in more current forms of palmistry, other features of the hand in addition to palmar creases are utilized. The form of the hand, specifically the shape of the palm in relation to the length of the fingers, is also considered to be a clue to personality traits, and Gettings links various "types" of hand-shapes with certain professions. The form of the individual fingers is also noted; the length of the little finger (the "finger of Mercury") and its individual phalanges, as well as the presence of any

PHOTO 1: Major creases used by the palmist.

PHOTO 2: Dermatoglyphic pattern types and major palmar landmarks.

PHOTO 3: Flexion creases of importance in medical genetic research.

curvature, for example, are believed to give information about a person's honesty and dealings with the opposite sex and with money. Nail shape and color and the appearance of the fleshy parts of the palm (the "mounts") are of importance too. Last, and of special interest to me, is the use of fingerprint patterns. Again using Gettings as an example, it would seem that there is a recognized link within palmistry between various dermatoglyphic pattern types and certain personality traits.

It must be noted that, as practiced by many modern proponents, "real" palmistry is not the simple matter so often depicted in the movies. Several hours are said to be needed to adequately take into account all the features noted above and to evaluate their meanings—both individually and, more important, in relation to one another. Which particular finger a certain print type appears on is important, and that must be viewed in light of the length of that finger, the shape of the palm, and the indications given by all the other features. A "reading" is not a list of individual meanings but an interpretation based on a consideration of the balances and conflicts indicated by all the individual features as parts of the whole hand.

Dermatoglyphics may be generally defined as the study of the patterns of parallel ridges and furrows on the epidermis of the hands and feet. These are essentially the fingerprints so familiar to us in connection with law-enforcement work. However, whereas the police are interested in combinations of fingerprint traits that characterize individuals, the specialist in dermatoglyphics is interested in those traits that can be put into a finite number of categories, some expressions of which are exhibited by all persons. The most important and obvious of these traits is the pattern type. There are three main types: arches, loops, and whorls; there are also subtypes of each of these as well as some other, minor types. Every human finger and toe carries, with few exceptions, one of these types. In addition, there are areas of the palm and sole that also display these patterns. The other important trait used in dermatoglyphics is pattern size. It is determined by counting the number of ridges between the center of the pattern and the triradius—the point from which the ridges that outline the pattern proper separate. In studying these two sets of characteristics, other traits of the hands and feet, including palmar flexion creases, have been noted, and in some cases have been incorporated into dermatoglyphic research.

Any human trait that shows variation is examined to try to determine to what extent its variation is a result of genetic differences between people and to what extent it may be environmentally explained. It became apparent during such investigations that pattern types and sizes were under some degree of genetic influence, although the specific details of the genetic mechanism have yet to be discerned. At any rate, the demonstration of at least a partial genetic basis led to two uses of dermatoglyphic data in other studies. One, of course, involved the

examination of human "racial" differences. Dermatoglyphics were added to the growing list of traits whose expressions and frequencies help to distinguish and define the races. When it was seen that clear-cut boundaries between human races simply did not exist—and therefore that the whole concept of "race" needed to be viewed in a different light—the emphasis of studies of variable traits shifted to the search for explanations of the trait variation itself and to the use of the traits as genetic markers in research on the processes of human population genetics and evolution.

The second application of dermatoglyphic data, and the one most germane to the present topic, is in the field of medical genetics. Correlations have been established between dermatoglyphic features and certain human disorders, most of which have a known or suspected genetic basis. Here then is a scientifically testable link between some of the palmist's data and some other features of human biology, some involving behavioral characteristics.

The genetic mechanisms behind most human features are extremely complex; hence, we often get a clue as to genetic basis only when something goes wrong—when we can trace a specific disorder through family lines or can link one disorder with another or with some other particular physical feature. In this case, a good number of human ailments already established as having, or thought to have, genetic bases were seen to be statistically linked to particular features of the fingers and palms. It is not that specific, rare sorts of prints or lines are absolute "signs" of a particular genetic disease; it is just that samples of victims of certain disorders have unusually high or low frequencies of certain patterns or features when compared to the general population.

Several distinct kinds of disorders have been shown to have correlations with dermatoglyphic "abnormalities." (See, for example, Alter 1966.) A large portion of these ailments involve structural aberrations in the chromosomes—missing pieces, or chromosomes that are attached to part or all of another chromosome (translocations). Others involve too many or too few chromosomes (aneuploidy); this can occur either with the autosomal (nonsex) chromosomes or with the sex chromosomes. A number of disorders known or thought to be the result of mutations of single genes are also listed as having dermatoglyphic correlations. Finally, there are some conditions of uncertain genetic transmission and several disorders of external origin, such as rubella, thalidomide-damage, and cerebral palsy.

The dermatoglyphic "abnormalities" associated with these disorders include unusual frequencies of certain pattern types, unusually high or low ridge-counts for pattern size, unusual frequencies of a number of other dermatoglyphic features, the appearance of only one flexion crease on the inside surface of the fingers, and a particularly interesting feature known as the simian crease or line—where the two transverse flexion creases of the

palm (the heart and head lines of the palmist) connect to form a single distinct crease.

As mentioned, the exact genetic mechanism responsible for dermatoglyphic features is as yet unknown. The correlations mentioned above, however, have shed some light on the problem. Other physical symptoms of many of the disorders studied in this context involve developmental abnormalities—aberrations that, in part at least, originate during the fetal period. Since it is known that the dermatoglyphic features develop between the sixth and twenty-first fetal weeks, it appears possible that these distortions in dermatoglyphic features have more of a mechanical explanation than a direct genetic origin. Other studies (Mulvihill and Smith 1969, for example) have suggested that pattern size may be under fairly direct genetic control, while pattern type is more the secondary result of the size and shape of the developing fetal fingertips. At this point one must conclude that the relation between dermatoglyphic features and genes is a complex one that also involves the effects of environmental factors, that is, factors relating to the development of other physical features and processes, factors perhaps of the internal environment of the womb, and maybe factors involving the complex interactions of differing genetic combinations. At any rate, whatever the mechanisms at work, there is a recognized relationship between certain features of the hands and other aspects of human biology that results in specific enough manifestations to allow dermatoglyphics, with limitations, to be used diagnostically for "strengthening diagnostic impressions" and as "screening devices" to select patients for further studies and tests (Alter 1966).

We may now examine some specific correlations to see if they resemble at all those proposed by the palmist. Again, using Gettings as an example of more recent versions of palmistry, we find the prints of the fingertips used as indicators of certain personality characteristics. Only the three basic patterns are used. Arches are said to indicate "crudeness," "practicality," and "rebelliousness." Loops point to "restraint," "lack of originality," and "coolness" of manner. Whorls are indicative of a person who is "creative," "restless," and "egocentric."

In dermatoglyphic research, an excess of arches (as compared with frequencies derived from large population samples) is associated with a number of disorders. These include trisomy 18—a condition where an individual possesses three rather than two of the eighteenth chromosome—a disorder that usually leads to infant death. Kleinfelter's syndrome, where males have two instead of one X sex chromosome (XXY), also is correlated with an excess of arches. Individuals with this syndrome exhibit such symptoms as underdeveloped gonads, sparse body hair, some breast development, unusually long legs, and some mental retardation. Other correlated disorders include certain forms of congenital heart

disease, idiopathic mental retardation, epilepsy with retardation, and, according to some investigators, schizophrenia.

An excess of loops is associated with other forms of congenital heart disease and with another trisomy, trisomy 21, also known as Down's syndrome, or (unfortunately) mongoloid idiocy. This familiar disorder displays a number of characteristic physical features as well as mental retardation.

Whorls in excess of normal frequencies have been associated with another anomaly of the sex chromosomes known as Turner's syndrome. With this condition, outwardly physical females possess only one instead of two X chromosomes (XO). Most XO conceptions end in spontaneous abortions; but, when live birth does occur, characteristic symptoms of the disorder include very short stature, broad chest with underdeveloped breasts, webbing appearance of the neck, small uterus, and either no ovaries or those represented only by small "streaks" of tissue. There is no mental retardation. Other disorders correlated with excess whorls include Huntington's chorea, a neurological condition that results eventually in loss of mental faculties; some additional forms of congenital heart disease; and, according to other investigators, schizophrenia.

As I think can be readily seen, only with some semantic effort can any of these recognized correlations be construed as resembling those of the palmist. It is interesting, however, that so many of the disorders noted include among their symptoms some sort of behavioral manifestation.

The set of traits by far the most important in palmistry are the flexion creases of the palms. As noted above, various characteristics of these lines are said to relate information regarding an individual's personality, intellect, physical form, and even future. As might be suspected, interpretive systems differ enormously, but the kinds of information divined always fall into one of those basic categories.

Essentially the only interest the dermatoglyphic specialist has in flexion creases is in their medical relationships. In this regard, there are only two crease characteristics that have been shown to be well correlated with genetically based disorders. One is the presence of a single flexion crease, instead of two, on the inner surface of one or more fingers. This anomaly, so far as I can determine, is not treated by palmists at all. Anatomically it seems to be associated with a lack of mobility of the underlying finger joint. Single digital creases have shown correlations with three disorders that affect the development of an individual in numerous and rather disastrous ways. Two of these are known to have a genetic basis. They are trisomies 18, which is fatal, and 21 (Down's syndrome). The other disorder is known as the oral-facial-digital syndrome. It is suspected by some of being caused by a trisomy of the first chromosome, though this has not been proved. It results in various deformities of the regions of the body that give it its name.

The second important flexion crease feature is the so-called simian line or crease (so named because of its presence in some nonhuman primates). Found in under 2 percent of humans in general, this single line across the palm shows higher frequencies in victims of a number of genetically based disorders. Among these are: trisomies 18 and 21, Turner's syndrome, De Lange syndrome (various anomalies of the hands and feet), Ellis-van Creveld syndrome (dwarfism and polydactyly), psoriasis, Rubenstein-Taybi syndrome (broad thumb and great toe), idiopathic mental retardation, and two disorders of external origin—thalidomide damage and prenatal rubella.

The simian line is also used by palmists (under that name). It is said to indicate "a strong inner tension" (Gettings, p. 117). Depending upon the general personality traits shown by the other palmar and digital features, this tension can display itself in a number of specific ways: creative and artistic, destructive and criminal, or religious.

As with the fingerprint patterns, it would appear that these correlations accepted for the flexion creases and those proposed by the palmist bear little resemblance to one another. Again, it is of interest, however, that so many of the disorders mentioned have symptoms that involve behavioral manifestations.

Finally, a characteristic used in palmistry but not in dermatoglyphics (except with regard to physical deformity related to genetic disorders) is that of hand shape. Again, specific features and interpretations differ among various systems of palmistry and among palmists. The essential idea, however, is the same—that the shape of the palm and fingers is a clue to personality characteristics. This is reminiscent of the physique and temperament correlations espoused by W.H. Sheldon (1942). Sheldon developed a system for quantitatively describing an individual's overall body build that consisted of three components each scored on a scale of 1 to 7. Sheldon further suggested that these genetically based component expressions were linked with expressions of personality or temperament, also described by three components scored 1 to 7. This subject is complex and is really a topic for another paper; suffice it to say that Sheldon's ideas, especially with regard to temperament, are seldom used today, in part because of problems of interobserver uniformity and in part because, as I have suggested elsewhere (Park 1969), the evaluation of types of temperament and of their correlations with body type may be under more influence from culture than from some underlying genetic basis. There is then, at this point, little scientific support for a biological connection between shapes of parts of the body, or the body as a whole, and expressions of personality and temperament characteristics.

Obviously, a more detailed, point-by-point examination could be carried out comparing the findings of medical dermatoglyphics with the claims of palmistry. It seems clear enough to me, however, that the

scientifically established connections between palmar and digital features and other aspects of individual biology offer no positive evidence in support of the relationships advocated by the palmists. This, of course, does not preclude the possibility of some sort of connection beyond the bounds of this type of examination or even of our current knowledge. The probability, though, seems remote at this point.

For instance, Lyall Watson, to cite the only "scientific" example of which I am aware, proposes in *Supernature* that an intimate connection between internal physical and mental conditions and the lines of the palm makes sense, since the nervous system, sense organs, and skin are all derived from the same embryonic layer, and since so many diseases and mental states are known to have some manifestations or effects on the condition of a person's skin. The inside and outside of the body, in other words, are in constant contact and interplay throughout life. As evidence for this, with regard to palms, Watson claims that palmar creases "break down" at the moment of death, when signals from the brain, which have maintained them, cease. A check with the Connecticut State Medical Examiner's Office indicated that this claim was unfounded; I was told that the crease lines remain after death. At any rate, although there are certainly numerous intimate connections between parts of the body, I think Watson fails to provide any reason to believe that any of these manifest themselves in specific ways in the lines of the palms. The occult art of palmistry and the scientific study of the meaning and cause of dermatoglyphic features must remain, for now at least, two quite distinct categories of knowledge.

This does not mean, however, that there may not be some connection between the two in historical perspective. It remains to be explained just where the idea for palmistry came from in the first place. There are certainly other parts of the body that could be "read" for purposes of divination. It strikes me as possible that the concept may have originated as a result of observations of medical phenomena like those described above.

That this is at all plausible was made clear to me during my own research on dermatoglyphics. I was studying processes of microevolution among the Hutterian Brethren of Canada, using fingerprints as genetic markers. The Hutterites are extremely knowledgeable with regard to anything related to agriculture, but are fairly ignorant of many things outside that realm; in other words, I had no reason to suspect that they knew anything about dermatoglyphics other than the fact that "the government" took fingerprints. In the course of my work, one Hutterite man came to me and inquired about the "funny" line in his palm; no one else in the colony, he noted, had one. It turned out to be a simian line.* I

*An ethical, methodological note: I chose not to tell him about the correlation between simian lines and genetic disorders. It was obviously not a factor for him, and an explanation complete enough not to cause him undue concern might not have been possible.

am fairly certain that his observation of it was not prompted by anything other than curiosity. It would seem perfectly reasonable then that early literate or even preliterate human groups could have noted correlations between unusual palm and finger features and physical or, especially, mental aberrations (observations that would have been much more obvious than that of my Hutterite subject's) and could then have developed broader ideas about the connections between these features and things like mental state and even future events.

To be sure, despite the lack of scientific support, and perhaps especially *because* of the clear distinctions between these two spheres of knowledge, those who "believe" in palmistry will continue to do so. After all, there is a certain comfort in having access to knowledge that is hidden from view or "hiding" in the future. And there is a certain discomfort in the ever-changing, never-absolute world of science. That my palm reveals my innermost being and my future life, that ancient astronauts built the amazing pyramids, that the mind can fix broken watches and locate archaeological sites—all these are intriguing and exciting and somehow comforting in their simplicity and absoluteness. It is an understandable emotion. Thus it is up to those of us involved in research like the above not only to examine (and often debunk) such paranormal phenomena but also to communicate the excitement and intrigue of *our* "occult" ("hidden" or "concealed") knowledge: the fascinating mysteries of black holes in space, of the extinction of the dinosaurs, of invisible particles smaller than atoms, and, yes, even of fingerprints and genes.

References

Alter, Milton. 1966. "Dermatoglyphic Analysis as a Diagnostic Tool." *Medicine 46*, no. 1.

Cummins, Harold, and Charles Midlo. 1961. *Fingerprints, Palms and Soles: An Introduction to Dermatoglyphics.* New York: Dover.

de Givry, Grillot. 1958. *Pictorial Anthology of Witchcraft, Magic, and Alchemy.* Chicago and New York: University Books.

Encyclopedia of Occult Sciences. 1939, New York: Robert M. McBride.

Gettings, Fred. 1979. *Palmistry Made Easy.* No. Hollywood, Calif.: Wilshire Book Co.

Mulvihill, John J., and David W. Smith. 1969. "The Genesis of Dermatoglyphics." *Journal of Pediatrics 75:* 579-89.

Park, Michael. 1969. "Physique and Temperament in Nilotics and Eskimos." Unpublished manuscript.

_____. 1979. "Dermatoglyphics as a Tool for Population Studies: An Example." Unpublished doctoral dissertation, Department of Anthropology, Indiana University, Bloomington.

Sheldon, W. H. 1942. *The Varieties of Temperament: A Psychology of Constitutional Differences.* New York and London: Harper and Brothers.

Watson, Lyall. 1973. *Supernature.* Garden City, N.Y.: Anchor/Doubleday. •

How Not to Test a Psychic: The Great SRI Die Mystery

This famous 'experiment' with Uri Geller seems now to have been little more than a collection of anecdotes.

Martin Gardner

Writing in *Nature* (vol. 251, October 18, 1974) on their 1972-73 experiments with Uri Geller at the Stanford Research Institute, Harold Puthoff and Russell Targ (hereafter called P and T) described one sensational experiment as follows:

> A double-blind experiment was performed in which a single 3/4-inch die was placed in a 3 x 4 x 5 inch steel box. The box was then vigorously shaken by one of the experimenters and placed on the table, a technique found in control runs to produce a distribution of die faces differing nonsignificantly from chance. The orientation of the die within the box was unknown to the experimenters at that time. Geller would then write down which face was uppermost. The target pool was known, but the targets were individually prepared in a manner blind to all persons involved in the experiment. This experiment was performed ten times, with Geller passing twice and giving a response eight times. In the eight times in which he gave a response, he was correct each time. The distribution of responses consisted of three 2s, one 4, two 5s, and two 6s. The probability of this occurring by chance is approximately one in 10^6.

Surely this experiment deserves to rank with the famous test in which Hubert Pearce, a student at Duke University, correctly called 25 ESP cards in a row as J. B. Rhine repeatedly cut a deck and held up a card. In one respect, the die test with Geller is more significant because it rules out telepathy. Of course it does not rule out the possibility that Geller used precognition or that he decided on a number while the box was being shaken and then used PK to joggle the die to that number. In any case, the

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Martin Gardner's Science: Good, Bad, and Bogus *(Prometheus Books) is to be published in paperback by Avon in January.*

experiment seems to be a simple, foolproof, monumental violation of chance.

On the other hand, as in the case of Rhine's informal account of Pearce's equally miraculous run of 25 card-hits, P and T describe the die test with a brevity that seems inappropriate for so extraordinary a claim. We are not told who shook the box, where or when the test was made, who observed the trials, how long Geller took to make each guess, whether he was allowed to touch the box, whether there were earlier or later die-box tests with Uri, or whether the experiment was visually recorded.

When P and T released their official SRI film about their five-week testing of Geller, one of the die-box trials appeared on the film. It was accompanied by the following voice-over:

> Here is another double blind experiment in which a die is placed in a metal file box (both box and die being provided by SRI). The box is shaken up with neither the experimenter nor Geller knowing where the die is or which face is up. This is a live experiment that you see—in this case, Geller guessed that a four was showing but first he passed because he was not confident. You will note he was correct and he was quite pleased to have guessed correctly, but this particular test does not enter into our statistics.

The box is seen to be a metal one of the sort used for 3-by-5 file cards. The same box appears in two photographs that accompany an article on Geller in the July 1973 issue of *Psychic* magazine (now called *New Realities*). One picture shows Geller recording his guess, the closed box near his hand. The other shows Geller opening the box to check his guess.

John Wilhelm, in *The Search for Superman* (Pocket Books, 1976) reports that he was told by P and T of many other tests they made of Geller with a die in a box. Some of them took place in Geller's motel room, with Uri doing the shaking. "He's like a kid in that he had something that made a lot of noise and he just shook it," Targ told Wilhelm. Targ also said that during the experiment reported in *Nature* Geller was allowed to place his hands on the box in "dowsing fashion."

Targ also informed Wilhelm that they had a "good-quality videotape" of another die test in which Geller, five times in succession, correctly wrote down the die's number *before* the box was shaken. "We think it's precognition," said Targ. "We think maybe even on his original experiment it wasn't that he knew what was facing up, but that he had precognition as to what he would see when he opened the box."[1]

Wilhelm gives other details about the original test. Puthoff was the experimenter who usually shook the box. Many different dice were used, each etched with a serial number to guard against switching. To avoid ambiguity in guessing, Geller was asked to draw a picture of the spots rather than write a digit. "The experimenters also insist that a magician who examined the videotape of these performances found 'no way' in

Psychic Magazine

Geller opening die box during 1973 experiments.

P and T told him that Uri had found the die test difficult. It is hard to imagine that Uri would have considered the test difficult when he obtained eight hits in a row in trials that lasted less than a minute each. Nevertheless, Rogo continues, "he did only one or two trials a day over a period of a week. . . . He made a total of ten trials. . . . Only *one* of these trials was ever filmed. . . . This is the only SRI film ever made of any die-throwing tests."

Now there is a big difference between two or three days and a week. I was further mystified because Puthoff had also told Randi personally, at a parapsychology conclave in Toronto in 1981, that the die test had taken a week. Was it a week, or two or three days?

An incredible thought struck me. Could it be possible that P and T had not considered it worthwhile to keep a written record of the trials giving all the details about when and where each trial was made and who was present on each occasion? I sent Puthoff the following letter:

> Dear Hal: 8 Oct 81
>
> Your reply of 5 Oct was much appreciated. I did not even know, until I got your letter, that you were the experimenter in these tests.
>
> May I assume from your statement of "two or three days" that the trials were not recorded and dated when they took place? It is the only way I can explain the ambiguity. (Rogo, by the way, in the latest issue of *Fate*, reports that he was told the trials took place during a period of a week, which only adds to the confusion.)

examined the film? They could not have included Milbourne Christopher, a professional who visited SRI, because he has told me he saw no film of the die test. There are only two possibilities. One is Targ himself, who had a boyhood interest in magic. The other is Arthur Hastings, a close associate of P and T and a strong supporter of their work. P and T used him frequently as a judge in their remote-viewing experiments. Hastings claims some knowledge of conjuring techniques, but in my opinion his knowledge is extremely limited.

In the fall of 1981, almost ten years after the die test, Puthoff finally revealed an astonishing fact. No film or videotape was ever made of any of Uri's eight successful guesses!

This revelation came about only because Randi, in his latest book, *Film-Flam!,* concluded, on the basis of privately obtained information, that the episode on the SRI film, showing Uri passing, was a reenactment of the experiment. Both Puthoff and Zev Pressman, the research engineer who made the film, have since vigorously denied that it was a reenactment. In reply to an inquiry, Puthoff unequivocally told me in a letter (September 10, 1981): "Only one trial was filmed, and that is the one that appears on the film . . . the entire series of trials was *not* filmed."

Why? Because, Puthoff explained, Pressman's filming was done primarily to record PK efforts. As the Christmas holidays of 1972 approached, Puthoff said, they decided to "slip" in some die-box trials, "without making a big deal of it," to see if Geller could succeed in a pure clairvoyance test. These trials, Puthoff added, were "spaced-out over a few-day period" just before Geller left. When Puthoff saw they were getting hits, he decided that a film record of their protocols would be useful. Puthoff asked Pressman to make the record and he came over to do it. "We broke up for the holidays," Puthoff continued, "assuming that eventually we would get more trials on film, but we never came back to it, going on to other things. . . . I hope this clears it up for you."

Well, not quite. It seems passing strange that in a test of this importance P and T would see fit to film only the single trial on which Uri passed. Moreover, I was puzzled by the vagueness of the statement that the test had been spaced out over a "few-day period." I wrote again on September 14 to ask Puthoff if he could recall the exact number of days. Puthoff replied (October 5) that the experiment was spread over a "two or three day period, a few trials per day, sandwiched in among other experiments, until a total of ten trials were collected." He added that the length of time per trial, "from when I began the shake to when I opened the box, was relatively short—30, 40, 50 seconds. The one you see on the film is quite typical, and it is well under a minute."

I had asked for the "exact number" of days, but Puthoff's answer of "two or three days" was almost as vague as his "few-day period." D. Scott Rogo, writing about the die experiment in *Fate* (November 1981) said that

> Perhaps I have regarded the test as more significant than it was considered at the time—especially since it ruled out the possibility of telepathy. If the die test was considered not important, and made more or less at random, with no keeping of records, then I can understand the confusion over the number of days. . . .

My assumption, Puthoff replied, was dead wrong. "Careful records were kept." He said he had now checked those records and determined that "the trials were carried out over a three-day period." Wilhelm, he added, confused two separate die tests. One was the test reported in *Nature,* of which only the passed trial was filmed. It used a red transparent die. Later a series of similar tests were carried out in a motel room in San Francisco when they were there for the *Psychic* article. These were videotaped. Puthoff closed by saying that he continues "to entertain Randi's hypothesis" but considers it ruled out by the SRI film. "Go back and view the film—that's what we have to deal with."

I found it curious that Puthoff would place any value on the filmed trial because, assuming Geller used a peek move for his hits, he obviously would not use it when being filmed. I wrote to Puthoff again (October 18) asking him if I could pay for the cost of having the original records photocopied. This is how I justified my request:

> In the interest of seeking the truth about this historic test (in which the results were so unambiguous and so overwhelmingly against chance), it would be enormously helpful to see these records. I want to be completely open. I know a great deal about dice-cheating techniques, and it is my belief that Geller did indeed peek by a method similar to the one Randi conjectured. The written records may cast no light on the matter, but at least they could be of help in pinning down the exact protocols.

The letter was never answered.

What conclusions can we reach from all this? The most important is surely the following. What seemed to any reader of *Nature* to be a carefully controlled die test has now become little more than a collection of anecdotes. At the very least P and T should make a full disclosure of all the details of the test, including photocopies of whatever records were made at the time. We also should be told the results of the videotaped tests made in San Francisco, and whether Wilhelm was accurate in reporting that a videotape was made of a successful precognition test with a die and box.

As it stands, the ten-trial test at SRI should not be called an experiment. There were too many ways Uri could have cheated (the peek move is only one)—ways that could be ruled out only if a knowledgeable magician had been present as an observer, or if a videotape had been made of all ten trials from start to finish, with no time breaks. In the absence of such controls for guarding against deception by a known charlatan, the die

test was far too casual and slipshod to deserve being included in a technical paper for a journal as reputable as *Nature*. It belonged more properly in a popular article for *Fate*.

Notes

1. Both P and T are strong believers in precognition. Indeed, this was the topic of Targ's paper, "Precognition and Time's Arrow," delivered at the 24th annual meeting of the Parapsychological Association, at Syracuse University, August 1981. Targ gave his reasons for thinking that precognition does not violate quantum mechanics and that it could be explained only by assuming time-reversed causality. He defended Helmut Schmidt's experiments that supposedly confirm backward causality, and cited William E. Cox's paper on precognition in the *Journal of the American Society for Psychical Research* (vol. 50, 1956, pp. 99-100), reporting a study of 28 trainwrecks that occurred between 1950 and 1955. Cox concluded that (in Targ's words) "significantly fewer people chose to ride trains on days when they were going to crash, than rode them on previous corresponding days of the week in earlier weeks or months."

2. Here is how Wilhelm reported what P and T told him about this die test (*The Search for Superman*, p. 95):

> "We only talk about the more conservative miracles," muses Targ. "We have another tape of Geller that's not reported because it's more outlandish. We have a very good-quality videotape in which Geller, on another visit, said, 'I don't want to repeat that, I have a new way of doing that dice experiment.' The new way is to write down on a piece of paper a number on the table. Then I [Targ] take the box and shake it vigorously. Then he takes my shaken box and he shakes it vigorously, dumps the dice out on the table, and it comes up the number he wrote down. We did that five times in a row."
>
> According to Puthoff, the dice was thrown "way up in the air, landing on the table, bouncing all over, and then coming up the [guessed] number." The die belonged to SRI.

In view of the fact that this entire test was videotaped, in contrast to the original test, which was not, it was a much better controlled test than the one reported in *Nature*. Does a tape of this test exist? If so, why has it not been made available to psi researchers? •

As long as people believe in absurdities they will continue to commit atrocities.

—Voltaire

A man does not attain the status of Galileo merely because he is persecuted; he must also be right.

—Stephen Jay Gould, *Ever Since Darwin*

Catch Up On What You've Missed In The SKEPTICAL INQUIRER

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The 'Monster' Tree-Trunk of Loch Ness

The photographer claims his pictures show a monster, but another local resident has a different interpretation.

Steuart Campbell

There has been great controversy over alleged photographs of the "monster" at Loch Ness in Scotland, and it is usually difficult to determine the reliability of such pictures. Indeed, no still photograph has been authenticated. Consequently, it would be helpful if some definite conclusions could be reached about at least some of these pictures.

Frank Searle is one of the most publicized "monster watchers" at Loch Ness. He has lived beside the lake since June 1969. He is an ex-soldier (18 years of service) and was a manager for a London fruiterer until he abandoned the "rat race" to seek the Loch Ness monster. His days are now spent watching the water with still and movie cameras at the ready.

Beside his caravan at Foyers Falls, Searle has built a small shed in which he displays sighting reports, newspaper clippings (about sightings and about himself), and photographs alleged to show the monster. Some of these photographs have appeared in his book *Nessie: Seven Years in Search of the Monster* (Coronet, 1976) and in some pamphlets about the lake (e.g., Barrie Robertson's *Loch Ness and the Great Glen,* undated). Some of these photographs accompany this article (Figures 1-5).

It now appears that some conclusions *can* be reached regarding Searle's photographs. Figures 1, 2, and 3 show pictures alleged to have been taken at about 6:00 P.M. (local time) on October 21, 1972, near Urquhart Bay. Searle took four pictures; the fourth is similar to the one shown in Figure 3 and appears in his book. He claimed that the "monster" suddenly appeared beside his dinghy, then dived and appeared on the other side, about 250 meters away. He said that this incident was witnessed by his companion (a 23-year-old Australian teacher), although he has not named

Steuart Campbell is an architect in Edinburgh, Scotland, a free-lance writer, and an investigator of various phenomena, including UFOs and ball lighting.

FIGURE 1

her. Searle immediately sent the film for developing and printing, and when he saw the results he sent prints to two British tabloids (one English, one Scottish). One of the newspapers captioned the photographs "The Most Amazing Pictures Ever Taken," and Searle was interviewed by the media. He has never released the negatives (not even for inspection by experts), although he sold some prints through a London photographic agency in 1972. Since then he has withdrawn the agency's rights and will not even sell the prints.

Many have been skeptical about the authenticity of these photographs. Indeed, local people are generally incredulous. When I first wrote about Searle (*New Humanist*, May/June 1976, pp. 20-21), I was prepared to give him the benefit of the doubt; I even used one of the pictures (Figure 3) in my article. Since then, two things have caused me to change my mind.

The first was my inspection of what Searle claimed was his most recent photograph of the alleged monster, but which appeared to be a montage of a picture of part of a reptile (a plesiosaur?) mounted on a picture of the lake. A similar picture appears in his book. It was so crudely done that I suggested to Searle that, if he expected to be taken seriously (I did not rule out the possibility that *some* of his photographs were genuine), he did himself no good by such obvious fakes. He took offense at this, claiming that the picture was genuine, and now will not allow me access to his photographs.

The second was my discussion with James A. Menzies, an elderly Lewiston garage-proprietor who owns Temple Pier, near Drumnadrochit. Menzies lives beside the pier, with a grand view across Urquhart Bay

FIGURE 2

FIGURE 3

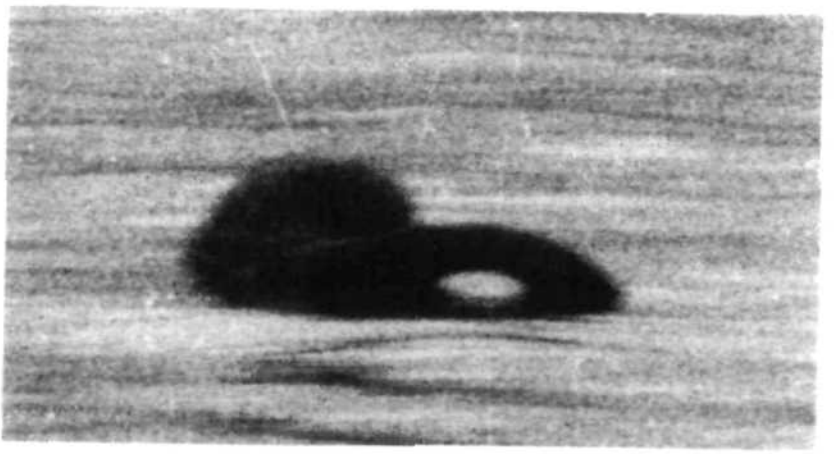

FIGURE 4

toward Urquhart Castle. Temple Pier is used by many of the individuals and organizations who come to investigate the "monster." Because of his assistance to the Boston Academy of Applied Science in their underwater explorations, Menzies was made an honorary member of the Academy. During our first conversation, in 1980, I asked Menzies about Searle and his photographs. He said that he had seen a large branch or a tree trunk drift into Urquhart Bay from the River Enrick on the day Searle took these pictures. When, in July 1981, I showed Menzies the first photograph taken by Searle (Figure 1), he identified it as a picture of the tree trunk he had seen in 1972.

In his book, Searle admitted that there had been heavy rain earlier that day; it would not be surprising, therefore, if some portion of a tree had been washed down the flooded river. If the photo in Figure 1 shows part of a tree, then it is a fair assumption that Figure 2 shows the same tree, although after a little more of it had surfaced. Since Searle claimed that all the pictures were taken at the same time, then we may also conclude that Figure 3 shows the same tree after it had become waterlogged and had sunk further into the water.

The tree looks unusual probably because (*a*) it has lost its bark, and (*b*) we can see only the part above the water. The trunk/branch is sinuous, but that is not unusual. The part of the object that looks like an open mouth is surely the part where a break occurred.

Searle's book contains other pictures that resemble floating branches or trees. Two that he claims to have taken March 23, 1973, appear to show an almost fully submerged trunk. Two other pictures (Figures 4 and 5) were supposedly taken on January 8, 1974, from the shore at Balachladaich. If this was the case, it is surprising that Searle did not take a picture with a wider view that would show the "monster" *and* the background shore. The pictures could be of anything, anywhere. Indeed, they could be out-of-focus pictures of the object shown in Figures 1, 2, and 3, but with the trunk rolled over and giving a different profile. The tree did appear to have had a large bulky part, distinguishable from a more slender component that could have been a branch.

Menzies is a respected member of the Drumnadrochit community; he has never claimed to have seen the "monster" and is unlikely to have invented his claim to have seen a tree trunk. It seems clear that both Searle and the tree-trunk were in Urquhart Bay on the evening of October 21, 1972, although Menzies does not recall seeing Searle. However, Searle did not mention seeing the trunk! We may conclude that Searle photographed the trunk, later claiming that it was the "monster." It seems likely, then, that *none* of his photographs are genuine "monster" pictures. Searle states, for instance, in a handout dated 1976, that he does not claim that any of his photographs have "any real scientific value"! This seems strange if he really thinks the pictures show an unknown aquatic animal. The evidence

FIGURE 5

suggests that over the years Searle has become increasingly desperate in his need for photographs of the "monster" and has had to resort to increasingly outrageous deceptions. He may think his public expects him to see the "monster" regularly and to provide photographic evidence of these encounters.

There may be a genuine "monster" in Loch Ness, and doubt regarding Searle's photographs should not be taken as evidence against its existence. But his hoaxes have not helped to bring about proper scientific investigation. ●

Editor's Note: The SKEPTICAL INQUIRER asked Charles J. Cazeau, professor of geology at SUNY-Buffalo and coauthor of *Exploring the Unknown,* to examine the Searle photos and comment on them. Here is an excerpt from his response: "Most damning of their authenticity as 'monster' photos is, upon close examination, the lack of any indication of water disturbance around the 'monster.' A large animate creature (as was the plesiosaur, for instance) would be likely to be in motion and to leave a wake of some kind. This 'creature' is hanging dead in the water (like a tree trunk). . . . In my field days as a geologist, I saw many old, curvaceous tree-trunks floating motionless in the water that could quite easily be perceived as some kind of monstrous creature. Figures 4 and 5 show something that is not only dead in the water but also slowly rotating. I would lend my support to the tree-trunk theory."

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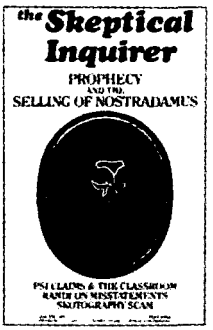

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UFOs, Pilots, and the Not-So-Friendly Skies

A senior airline pilot publicly announced he had taken a dramatic color photo of a disk-shaped UFO in broad daylight. Here is what really happened, and why.

Philip J. Klass

Had you been one of the many thousands of people who listened to the popular evening talk-show broadcast over San Francisco's powerful KGO radio station on March 31, 1975, you could easily have been convinced that there are extraterrestrial craft in our skies. You would have heard a senior United Airlines captain report that he not only had seen a disk-shaped UFO in broad daylight but had managed to photograph it in color. In the public mind, airline pilots are viewed as people whose integrity and veracity are beyond question.

I was one of two guests on the Art Finley show that evening, along with Paul Cerny, then chairman of the Mutual UFO Network's Bay Area chapter and now MUFON's western regional director. After Cerny and I had crossed verbal swords on the UFO question, with me in my traditional skeptic's role, we then responded to questions and comments telephoned in by listeners throughout the Pacific Coast and Rocky Mountain states.

One caller said he was a senior captain with a major airline, which he declined to identify, except to say that "we fly the friendly skies," i.e., United. The captain, who declined to give his name on the air, said the incident had occurred around 4 P.M. in September 1958 when he was flying as co-pilot aboard a DC-6 airliner en route from Seattle to Los Angeles, cruising at an altitude of about 14,000 feet.

He said the disklike object was spotted to the west as it was approaching the DC-6, and it subsequently passed and was flying ahead of the airliner. The pilot said he had with him in the cockpit a recently purchased camera loaded with color film. He quickly grabbed the camera

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Philip J. Klass is a veteran aviation writer and editor in Washington, chairman of CSICOP's UFO subcommittee, and author of UFOs Explained. *This article is based on a chapter from his next book,* UFOs: The Public Deceived, *to be published by Prometheus Books in 1983.*

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and photographed the UFO through the green sun-shield over the right-hand window. The captain said he sent a copy of the color-transparency to "Major Keyhoe's organization," i.e., the National Investigations Committee on Aerial Phenomena (NICAP). He said they analyzed the photo "but could find no spectral lines."

At this point our on-the-air discussion was interrupted for the hourly news report. Cerny and I asked the airline pilot to remain on the line so we could talk to him privately, and he agreed to do so. During the subsequent private conversation, I asked the captain if he had the original color transparency of the UFO, and he assured me that he did. I expressed an interest in obtaining a copy of it, along with a copy of the report he said he had written shortly after the incident, and offered to send him in return an autographed copy of my then recently published book, *UFOs Explained.* He agreed and gave me his name, Joseph H. Mathes, and his address. Cerny also talked with the captain and also requested a copy of the report and the photo for MUFON.

Within a few days I returned to Washington and promptly mailed Captain Mathes an autographed copy of my book. After a month had elapsed without a response, I wrote to Mathes, on May 11, asking if he had received my book and when I might expect to receive a copy of his UFO photo and report. He replied on May 18, thanking me for the "gift." Mathes explained that because of his busy schedule he had not been able to read my book until quite recently. He complimented me on some aspects of the book but challenged others in a manner that suggested he was a "UFO-believer," which, of course, is his (and everyone's) inalienable right.

But Mathes did not enclose the long-awaited UFO photo-transparency or the report. Instead, there was a brief P.S. that said: "As formerly advised, please contact NICAP for information on 1958 report and slide." If Mathes had "formerly advised" me during our original telephone conversation that I should obtain the photo and report from NICAP, there would have been no reason for me to go to the expense of sending him a copy of my book.

I responded on May 27, answering some of the challenges posed in his letter, and concluding: "I feel you have not kept your part of the bargain. I agreed to send you an autographed book without charge and you were to at least try to find your original report and slide . . . Surely for so important an incident and photo . . . you must have put them away in a valuable, safe location . . . At least try to find them for me."

Mathes replied by letter on May 31, devoting nearly four typewritten pages to further challenges to my views on UFOs. Only at the bottom of the last page did he mention the UFO photo and report, saying that he had "not put my report and UFO slide away in a safe place, unfortunately." He claimed he was unable to find them and added that the incident now was quite "old and not all that important." Mathes concluded his letter: "Have a happy and enjoyable summer season. Life has many beautiful things to

offer besides investigating a group of shy, well-meaning visitors to our beloved planet."

On July 1, 1975, I wrote to Jack Acuff, then head of NICAP, with whom I had cordial relations. I recounted the Captain Mathes UFO incident and asked if Acuff would search NICAP files for the Mathes report and photo, as well as for the spectral analysis that Mathes said NICAP had made. Acuff responded on July 3, saying he had checked NICAP's files and could find neither the UFO report nor the photo.

Then I remembered that in 1964 NICAP had published a 184-page report, entitled *The UFO Evidence,* in which it had listed the most impressive UFO incidents and photos, for distribution to members of Congress and the news media. I turned to this report, which had not been prepared until several years after Mathes claimed he had submitted the photo and report to NICAP. One section was devoted to UFO reports from airline and military pilots, *but there was no mention of any report from Captain Mathes.* Another section listed 64 of the most impressive UFO photos that had been submitted to NICAP between 1946 and 1962, *but there was no mention of a photo from Captain Mathes.*

On July 7, I wrote to Captain Mathes saying that NICAP had no record of having received either his UFO report or the photo, adding that my search through NICAP's lengthy 1964 report containing its most impressive cases also had failed to turn up any mention of the incident. I concluded by offering him an "out." Was it possible, I asked, that he had sent his UFO report and photo to some other UFO organization and not to Major Keyhoe/NICAP. My letter was soon returned, unopened, marked: "Refused by addressee. Return to sender."

I began to wonder if Mathes really was a senior captain with United Airlines, or whether this claim, like the others, was bogus. On August 3, I wrote to a friend who was employed at the United Airlines flight-training center in Denver to ask if he could check company records to determine if United had a captain named Joe H. Mathes. Two weeks later my friend replied that it was not necessary for him to check the records because he had met Mathes in late 1973 when he came to Denver for his semi-annual pilot proficiency check. He said that Mathes had told him that he and a team of electronic and computer experts in California were working to "crack the code" that would enable them to communicate with the extraterrestrial visitors who pilot the UFOs!

Another curious incident involving MUFON's Paul Cerny had occurred during the same talk-show on station KGO. At one point in our discussion, Cerny suggested that the real reason I was a UFO-skeptic and debunker was that I was being paid by the Central Intelligence Agency or some other government office. I reminded Cerny that he had made a similar allegation in the late 1960s when we had appeared together on a Bay Area television program. At that time, I reminded him, I had offered to pay him $10,000 if he could substantiate his charge.

When he raised the issue again on the KGO program, I noted that, because there had been considerable inflation since my offer was made, I would now raise it to $25,000. I said I would pay him if he could prove that I had ever received any money from *any* government agency at any time except for a small Social Security payment on the death of my mother and an even smaller amount one year as a refund on my income tax.

Furthermore, to help Cerny obtain the evidence he needed to collect the $25,000, I offered to send him for his examination photocopies of my Federal tax returns since 1966, when I first entered the field of UFOlogy, *if he would let me examine his Federal tax returns for the same period.* If he found evidence of the alleged payments in my tax returns, he could collect the $25,000. And if he found no such evidence but could prove his charge by other means, he could have me sent to prison for tax evasion as well as collecting the money, which undoubtedly would please him greatly. *Cerny agreed to send me his Federal tax returns as soon as he received mine.*

Upon returning to Washington, I made a photocopy of my Federal tax return for 1966, and on May 10, 1975, I mailed it to Cerny with a letter saying that as soon as I received his 1966 return I would send him a copy of mine for 1967, and this procedure would continue until each of us had sent the other all of his tax returns. *The letter containing my 1966 tax return was returned, unopened, marked: "Refused. Please return to sender" and signed "P. Cerny."*

I heard no more from either Mathes or Cerny. Then in mid-February 1982, I was told that Cerny and Mathes had concocted the story of the pilot's UFO sighting in advance of the KGO program to confront me with a seemingly irrefutable UFO report—from a senior airline captain with a daylight photo to support his story.

This I learned from a young UFOlogist named John Merrell, of Beaverton, Oregon, whose experience in investigating UFO cases had converted him to a skeptic. Merrell had corresponded with Mathes in the spring of 1975. In a letter dated May 11, 1975, barely six weeks after the KGO broadcast, Capt. Mathes suggested that Merrell "contact one Paul Cerny, a personal friend of mine . . ."

Mathes concluded that if Merrell was "deeply serious about learning the real purpose and validity of UFOs, and their reason for visiting this planet. I would be happy to forward to you a copy of *The Amnesia Factor,* published by Celestial Arts of Millbrae, Calif., when it reaches the bookstores next August . . . I wrote the book in conjunction with Lenora Huett, my coworker." Merrell obtained a copy and, following our recent discussion, he sent it on to me.

The contents of the paperback book are summarized on its back cover: "Two extraterrestrial guides speak through the unexpected voice of a gentle and gifted 'channel.' Through a series of taped interviews in which two beings in different times and dimensions speak through Lenora Huett, J.H. Mathes writes compellingly of what they said about him, about

mankind, space, other worlds, and God."

In the introduction of the 169-page book, we are told that Mathes "maintained a firm, skeptical stance throughout three decades concerning ESP phenomena. But one sunny afternoon in 1971, he was introduced to Lenora . . . Within ten short minutes with Lenora, his limited opinions had to be radically revised. He quickly determined that her telepathic ability was genuine by asking complex questions clearly beyond her field of knowledge."

During this first session, Mathes writes, "we soon discovered that Lenora knew nothing about UFOs, nor did she have any real interest in such things. Paul [whose last name is not given but who appears to be Paul Cerny] then began projecting slides onto the screen. As a test, he asked Lenora if the UFO in the picture was real or fake. Gradually overcoming her shyness, Lenora faintly murmured, 'That one feels like a fake.' Then another UFO flashed onto the screen and she hesitated, looking far away. Suddenly she stated, 'That's the real thing.' Then another lighted the screen. Leaning forward, she stated, 'That, too, is a real object. I can sense that there was life aboard that craft.' We stared at Lenora. somehow I could tell that she had been accurate . . .," Mathes wrote.

The most impressive part of Mrs. Huett's performance was yet to come. "Paul lapsed into his lecture format by stating the circumstances surrounding each sighting. 'This photograph was taken by a scientist . . . We'd like to find out if UFOs are able to penetrate into dimensions other than ours.' Lenora leaned back, closed her eyes very briefly, then surprised us all by rattling forth the following strange message: "They could, but do not. Their vibrations vary within the bounds of those energy layers within the physical matrix. They are able to reach a different vibration, yet are still here."

Mathes asked: "What can I learn about my prior lives? I'm especially interested in Biblical times." Mrs. Huett informed him he had once been a Tibetan monk, named Twzen, and Mathes reports: "With the spelling of the name Twzen, I felt a strange glow flood through my body." Mrs. Huett explained that data on prior lives comes from the Akashic Records and that a person's "guides" were the guardians of the records. When Mathes asked for the names of his "guides," this question brought forth a scowl from Lenora. Mathes writes: "Much later, I discovered that the cause of her hang-up was bound up in the past. Lenora had innocently told some close friends of her newfound ability with telepathy and, when they tested her by requesting the names of former relatives, she had misspelled a few. Her close 'friends' had promptly called her a fake. Such mistreatment had caused Lenora no end of confusion and hurt."

After the first chapter, Mrs. Huett and Mathes abandon UFOs for much more esoteric subjects such as multi-dimensional worlds, "astral planes," and "karmic debts." (In the Acknowledgments page, the authors express their appreciation to Maharishi Mahesh Yogi, for his "exquisite

new *Commentaries on the Bhagavad Gita* correcting many centuries of misinterpretation," and "To his beloved teacher: Jai Guru Dev eternally.")

According to John Merrell, Cerny admitted to him that I had been "set-up" by prearrangement with Mathes. At the time of the KGO broadcast I never once suspected that Cerny and Mathes were in cahoots. Merrell has a tape-recording of the program and told me he has listened many times to the portion in which Mathes called in and Cerny and I asked questions about his UFO incident. Merrell says that Cerny was a good "actor" and successfully gave the impression of "surprise" and "astonishment" as Mathes told his tale.

Art Finley, the talk-show host on the night of March 31, 1975, has long since left the area. Even if station KGO were to reveal on another talk-show how its listeners had been victimized, how many of the original listeners would be tuned in? How many of the original listeners, when the subject of UFOs comes up in conversation, comment: "Well, all I know is that I heard a senior airline captain one night on the radio say that he not only had seen a strange, disklike object in broad daylight but he had even photographed it. Surely a senior airline pilot wouldn't tell a story like that on the radio if it weren't true."

As for me, I hope the time never comes when I settle back in my airline seat and the pilot comes on the cabin intercom to say: "Good evening, folks, welcome to the friendly skies. This is your captain, Joe Mathes. I have just received an extraordinary message that you won't believe . . ."

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Editor's Postscript: On May 12, 1982, the SKEPTICAL INQUIRER sent a copy of the article above by Philip J. Klass in manuscript form to the pilot, J.H. Mathes. It invited him to comment, in writing, on the specific factual points in the article and offered him space for those comments to appear with the article. He replied by telephone to the editor on May 14, saying he did not wish to reply in writing. He maintained he had taken the daylight UFO photo in question (a 35-mm slide), but said he would not provide any evidence to support the assertion. He refused to provide the slide or a copy of it for analysis. "I have no obligation to produce it," he said. He said he had sent a copy of it and a report on the sighting to NICAP (Major Donald Keyhoe) in Washington about November 1958 "give or take two or three months," and we should check there. As the article points out, Klass had already checked, and NICAP could find no record of having received anything from Mathes. Nor was there any mention of it in the 1964 NICAP report that contained a section devoted to UFO reports from airline and military pilots. Mathes said he could not provide a copy of the report he sent NICAP becuse he "had not made a copy of it" at the time. As for the radio program on KGO, Mathes said Paul Cerny had known of the (alleged) photo and did suggest he call in to the radio program Klass was on. But he said, "There was absolutely no collusion whatsoever."

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On the Paranormal: In Defense of Skepticism

The predictable pattern of presentation-critique-rebuttal concerning psi claims has missed an important issue: Why are the skeptics so skeptical?

Arthur S. Reber

There has never been a shortage of interest in paranormal phenomena, although the focus has shifted from time to time. Sometimes there has been a quasi-theological slant with concerns about Satanic influences; at other times, a mystical orientation suggesting the existence of untapped, occult (from the Latin meaning *covered* or *concealed*)) properties of mind; and, at still other times, an empirical, scientific tilt, where the effects are examined under laboratory conditions. To a considerable extent all three of these foci coexist today, but it is with the third that I am primarily concerned here: the claim for the "reality" of paranormal phenomena by persons who are trained scientists and seekers of empirical truth.

Recent years have witnessed two remarkable flurries of activity on this front. On the one hand, there is the widespread acceptance by scientists and laypersons alike of the truth of the paranormal. On the other, there is the vigorous and dedicated effort on the part of many equally dedicated persons to critique the claims made for paranormal effects.

I have been fascinated by these battles, and as I have read the literature and taught courses on the subject I have been struck by a telling sameness in the "give and take." The scenario is roughly as follows: Parapsychology researchers carry out an experiment on some paranormal phenomenon (most of the recent efforts have been on telepathy [Soal and Bateman 1954], clairvoyance [Schmidt 1969], and remote viewing or "astral projection" [Targ and Puthoff 1974, 1977]). The experiment is described as having been carried out with scrupulous control, and the

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positive findings are usually presented with an impressive array of statistical support. The responsible parapsychology community, itself wary of fraud and complicity and the eagerness of the editors of supermarket "rags" to exploit them, carefully examines the study to assure itself that the work is legitimate. Having "passed muster," the study is deemed to be a significant and important demonstration by the parapsychologists and it is announced as such in various esoteric journals and in popular books. A hard-working skeptic, with a zeal that would have warmed the heart of Arthur Conan Doyle (Sir Arthur, interestingly, was a firm believer in fairies, among other occult phenomena), reveals that this "new classic" study in fact contains logical and methodological holes big enough to drive a half-track through and proceeds to demonstrate how no paranormal explanations are needed for what have turned out to be perfectly nórmal effects. The responsible members of the parapsychology community react sensitively to the critic, usually by pointing out flaws in the arguments concerning flaws in the study. Then they point out that, even if these experimental findings are not reliable, this presents no fundamental problem because a new experiment with "air-tight controls" has been reported that has demonstrated the same effects. The hard-working skeptic, with singular enthusiasm, notes that this new study, in fact, . . . This pattern can easily be seen in the critical volumes of Hansel (1980) and Marks and Kammann (1980) and in reviews of them by defenders of parapsychology (e.g., see Palmer's review of Hansel [Palmer 1981]).

The lesson learned in reviewing these issues is that the question of the "reality" of paranormal phenomena is stunningly resistant to empirical validation and falsification procedures. Quite frankly, there are no data I know of that could convince a skeptic of the existence of psi phenomena, and there are no sufficiently cogent critiques of the experiments I have seen that could persuade a believer that all is artifact. Indeed, this dispute is not played out to convert the dogmatists on either side; it is aimed at the rest of the intellectual and general public to persuade them to adopt one or the other point of view. And so it should be. This, of course, is what this essay is all about.

The cycle of presentation-critique-rebuttal-presentation-critique has been most entertaining, but it has missed an important issue: Why are the skeptics so skeptical? I am one, and I have not been in the least persuaded by any experiment I have ever seen, including those whose flaws I cannot divine and those that have resisted the scalpels of the best of critics. The issues that are of far more import are those that go beyond current disputes over empirical demonstrations or the lack of them. These are the larger issues of philosophy and science. An appreciation of them is surprisingly absent from most of the public pronouncements of the disputants. It seems rather clear to me that skeptics are skeptics because they recognize (consciously or unconsciously) that science is anchored by three

fundamental "canons" and one psychological "law" and believers are believers because they fail to recognize the profundity of these canons and the pragmatic richness of this psychological "law."

The canons are as follows: (1) Nature is reliable. (2) Science is coherent. (3) Explanation is mechanistic. The psychological law is the Principle of Psychological Inertia, which states that the greater the weight of a body of knowledge the more difficult it will be to deflect the thinking of the possessors of that knowledge. Let me take these up one at a time and show how they explicate the position of the skeptic.

Nature is reliable. In some ways this principle is taken as an axiom of all scientific work. It is a "given" whose truth is so fundamental to the entire endeavor that it is rarely if ever approached in a critical vein. Indeed, without it the entire nature of the scientific enterprise would undergo such a radical transformation that no one can even conceptualize what it would be like. Nature *is* reliable. If you release a rock, it falls and it falls reliably. Should one fail to fall, then systematic efforts are carried out to determine why. It may be found that it was lighter than the surrounding medium, that wind currents supported it, that magnetic fields affected it, or that there was some other reason. These new principles of mass, air movements, magnetism, and the like are investigated; their properties are examined; their modes of action are eventually understood; and through it all nature remains reliable. Released rocks fall unless they are lighter than air, affected by wind currents, magnetic fields, etc.

Of all existing scientific disciplines, from the established, like classical mechanics, to the newer and more speculative, like neurobiology, one and only one fails to display reliability—the "science" of the paranormal. Psi effects are notoriously unreliable and, interestingly, the proponents of the effects are among the first to point this out. They often speak of psi as "shy" or "elusive" and offer such rationalizations as the existence of "bad vibes" emanating from nonbelievers that prevent the appearance of the phenomena.

How, a skeptic is forced to ask, can we study scientifically a will-o'-the-wisp? How can one apply empirical analytic procedures to a set of phenomena that "refuse" to appear reliably when the requisite conditions are established? What would the study of magnetism be like if magnets displayed "shyness" and revealed their properties on a random or nondiscernible schedule?

Note that this issue has nothing to do with that hoary metaphysical dispute over probabilistic versus deterministic principles. It matters little, in the final analysis, whether the ultimate nature of reality turns out to be fundamentally probabilistic or ultimately deterministic—or even ultimately deterministic in principle but only knowable probabilistically. If nature is probabilistic, then it is *reliably* probabilistic and there will be knowable distributions of occurrences of events and phenomena. We need

look no further than quantum mechanics to see how firm the reliability issue is in the context of probabilistically knowable effects.

Reliability and its experimental cousin, replicability, are touchstones of the scientific method. The rock that falls on Monday will fall on Tuesday, the rat that discriminates between two stimuli in the morning will do so in the evening, information in a subject's long-term memory on one day will be there on another day. Moreover, any of these effects can be obtained in Houston, New York, or Peking. So long as the findings of parapsychologists cannot be shown to reveal a reliable nature and so long as they cannot be replicated by independent investigators, they fly in the face of the canon of the reliability of nature. One does not have to believe in Skinnerian behaviorism to teach a dog how to beg; one cannot be expected to have to believe in ESP in order to observe its action.

Science is coherent. Fundamental principles revealed in one domain of science are discovered to be represented in other domains as well. Basic principles of energy and mass, principles of cause and effect, the unidirectionality of time, the laws of thermodynamics, and so forth, are generalizable principles that reveal themselves in all domains of scientific investigation. Independent of the fact that exchanges of energy and mass were first discovered and explored in the realm of the physical sciences, they apply and can be shown to account for phenomena in the life sciences and the social sciences. Cause-and-effect relationships are unidirectional everywhere; time is an arrow with but one pointer.

Appreciate that the notion of coherence here is deeply derived and is in a sense a corollary of the preceding canon of reliability. If an aspect of scientific investigation reveals a set of principles that appears not to be coherent with respect to the existing body of scientific work, close examination of these findings invariably ensues. The operations involved in this pursuit are interesting and not always recognized for what they are. The nature of such an exploration, in the final analysis, involves the determination of *boundary conditions* of applicability of groups or clusters of coherent principles. For example, when certain anomalies were uncovered in physics at the beginning of this century and Einstein put forward a model that sketched a rather different picture of the nature of things from that articulated by classical mechanics, it was not for the purpose of "overthrowing" the Newtonian model; it resulted in the articulation of a set of boundary conditions of the applicability of Newtonian mechanics on one side and the applicability of relativistic principles on the other side. Within each of the separate realms the scientific exercise is coherent, as one would expect of any consistent theory. But more important, this "local" consistency is overlaid by a higher-order coherency. Einstein may require a rethinking of gravity as a warp of space, but his characterization does not negate the inverse square law. The physicists' trick is to discern just how big or small or just how fast or slow a thing is so that they may apply classical or relativistic principles

to it.

If this seems obscure, it is easy to find more mundane parallels in psychology. For example, the best model of the acquisition of the conditioned knee-jerk response appears to be that put foward by Pavlov, and the most cogent characterization of the behavior of a rat in an operant discrimination experiment is that given by Skinner. But if you wish to gain some insight into the nature of the processes by which a child acquires a language, neither of these perspectives is terribly helpful. You are going to need to call upon other theoretical analyses based on cognitive processing with all of the attendant mentalistic notions that Pavlov and Skinner eschewed. But note that cognitive theory does not negate Pavlov or give the lie to Skinner; classical and operant conditioning processes still have their value. The psychologists' trick is to discern just how complex a learning process is so they know whether to apply behavioristic or cognitivistic analyses to it.

All theoretical exercises provide understanding into only limited domains of a science. No matter how vigorously the practitioners contest the extensiveness of a particular theory, nowhere does one find circumstances where one set of principles within a given domain violates another set of principles from another domain. General relativity complements classical mechanics; cognitive science complements behaviorism.

The "science" of the paranormal, however, does violence to all other domains. As currently constituted, the study of the paranormal represents a direct violation of principles articulated elsewhere. In the simplest case, the hypothesized action of telepathy violates the inverse square law for the propagation of energy. Parapsychologists have claimed that there is no diminution in psi ability with increasing distance. Telepathic messages are assumed to be sent and received over distances from a few feet to many miles without any observed drop-off in receiver reliability. No other aspect of scientific endeavor has ever produced such a claim; everywhere else energy levels fall systematically with the square of the distance traveled.

Take the example of precognition. The purported ability to "see" events that have not yet happened disrupts the established coherency of science on three rather extraordinary levels. In one fell swoop it contradicts (*a*) the principle that cause precedes effect, (*b*) the linearity of time, and (*c*) the first law of thermodynamics. If you "know" precognitively about an event that will occur tomorrow, something in the future is having a causal impact on you in the present. Thus time has been reversed, since tomorrow is here today (in fact, it's here before tonight will be); and effect has preceded cause, since tomorrow is dependent on today, yet tomorrow is now affecting today. Moreover, the first law of thermodynamics has been "overthrown," for a thing without substance (the future) has had an impact on a material substance (you, here in the present). No other domain of science entails such a preposterous set of conclusions about the fundamental coherence of the existing body of

scientific knowledge. Skepticism is obligatory in the face of such claims.

Explanation is mechanistic. The nature of science has been, for several centuries now, dependent on the existence, or at least the hypothesized existence, of mechanisms through which particular actions can be seen, or at least in principle understood, to be occurring. It is a hallmark of science to be intrinsically suspicious of reported phenomena for which no comprehensible mechanism seems to exist. This cognitive need of ours has on occasions led to rather fanciful notions. Prior to the development of the theory of universal gravity, the observed rate of fall of objects was "explained" by hypothesizing an internal, spiritual component of all things, inanimate and animate alike. Thus the acceleration of a stone plummeting to earth was understood to be a manifestation of this internal, spiritual component; the stone was "full of joy" as it approached the position of its rightful location on the surface of the earth. The closer it got, the more "joy" it felt and, hence, the faster it fell.

The hypothesized mechanism here was founded in animistic theory; the stone was endowed with an affective capacity that of course it did not possess. The point is that the need to have some kind of internal operational system through which the observed phenomenon could be understood was overwhelming.

Take another example, one where the failure to hypothesize some kind of coherent operational principle or mechanism led for a time to the unfortunate neglect of a particular set of phenomena. I have in mind here the ability of Eastern "mystics" to alter their blood pressure, heart rate, oxygen consumption, body temperature, brain waves, and a variety of other autonomic processes, which for most of us is beyond our voluntary control. For a considerable period of time these claims were looked on skeptically by Western scientists for the simple reason that no mechanism had been put forward that could explain how these effects could be taking place. However, in the past few decades there has been considerable enthusiasm over these phenomena and vigorous research into the nature of these control systems. This new-found acceptance of the data and enthusiasm over the effects did not result from any particularly compelling empirical demonstration; it came in a rather straightforward manner from the hypothesization of a reasonable mechanism through which these effects could be understood—biofeedback. What the "mystic" does, basically, is to learn to pick up information about internal operations of the autonomic system and engage various voluntary muscular, skeletal, and cognitive processes so as to produce the secondary shifts of autonomic activities. With appropriate external support devices, anyone can produce many of these alterations of body functioning.

The critical issue here is the notion of an *in principle* mechanism; it does not have to be immediately shown to be tangible. Acupuncture is regarded by most medical scientists as real because of the hypothesized

operations of "neural gating mechanisms" through which it can be comprehended. The fact that we have no clear understanding of neural gating mechanisms is quite irrelevant; the model provides an in-principle mechanism through which to understand how a vibrating needle in one location in the body can produce anesthesia in another.

In the case of the paranormal, we find a total lack of coherent mechanisms through which to explain the reported phenomena. This is not to say that mechanisms have not been put forward. The difficulty is that those that have been proposed run afoul of the first two canons discussed above. How could telepathy work? Brain waves are too weak, and anyway they are known to obey the inverse square law. How could psychokinesis operate? Again, energy levels of neurological systems are too low to affect dice or roulette wheels. Hypothesizing an ethereal or substanceless psychic energy violates the known laws of thermodynamics. Similar questions are easily posed for all psi effects. Without some mechanism, some set of basic processes through which these effects can be, at least in principle (that is all that is asked), understood, a skeptical stance is mandated.

Let me try to anticipate a howl or two of protest here. First, it needs to be recognized that the degree to which a mechanism not discordant with the body proper of science is a requisite for a phenomenon is not a matter of pure logic. In fact, logic has essentially nothing to do with it. As astronomer George Abell is fond of pointing out, ancient and medieval observers never disputed tidal actions even though they knew of no reasonable mechanism for them. The critical feature here is our first canon, nature is reliable. When effects are extraordinarily reliable, scientists will accept them as real and live, albeit uncomfortably, with the lack of a coherent mechanism. Psi effects display a reliability so low that few scientists are made uncomfortable.

Second, it would be wrong to take the preceding discussions as no more than the "protestations of a rigid scientific establishment that cannot accept phenomena that disturb its arbitrary foundations." To return to the example of the Eastern "mystics," the early demonstrations of the practitioners of this fascinating capacity were, in fact, not rejected out of hand by Western scientists. Rather, they were viewed with a questioning eye and put in a "holding pattern." They were not dismissed, because there was nothing in them that violated the first two canons of science. The phenomena were reliable (a yogi who could lower body temperature on Monday could do so again on Tuesday) and coherent (nothing in the nature of these effects contradicted the rest of the body of science). Just to drive this point home, many of the other phenomena reported to have been produced by Eastern mystics, such as climbing an unsupported rope, have *not* been accepted by science and indeed are little more than clever conjuring tricks.

To review our three canons with regard to the claims of the

parapsychologists: we are being asked by them to accept a group of effects that are not replicable and which suggest that nature is not reliable, that are lacking in coherence in terms of the rest of the body of scientific knowledge, and for which there are no known or hypothesized mechanisms of action. This brings me to my psychological "law."

Psychological inertia. Again, the basic point is a simple one: scientists are human beings and the operations of science are carried out by human beings. Members of our species are just as susceptible to the operations of psychological inertia as matter is to physical inertia. The existing body of science is enormous; it encompasses all of the domains of the social, physical, chemical, biological, and mathematical sciences. It is buttressed, moreover, by a rich and compelling philosophical examination of the nature of metaphysics and epistemology. Put together, this represents a very weighty body of thought. It is a body of thought that is based on the first two canons of reliability and coherence interwoven with the third so that there are operations and processes that provide a foundation for the exploration of the observed actions.

In the mind of the contemporary scientist this yields a truly remarkable degree of psychological inertia. You won't deflect the path of an onrushing boulder with a pea and you won't alter the path of contemporary science with a set of claims that are unreliable, lacking in coherence, and devoid of explanatory mechanisms.

Now there is a danger lurking here, and every honest skeptic should be aware of it. There is a theme running through folk tales and myths: the genie always extracts a price for those three wishes. The price of the principle of psychological inertia is that science is somewhat conservative. It is reluctant to accept new perspectives, new approaches, or, to use Thomas Kuhn's term, new paradigms that run counter to the grain of the existing scientific dogma. There have been more than a few occasions where particular novel approaches have been vigorously resisted by the scientific community on the grounds that they cannot be blended with the existing body of knowledge and theory. The names that form on the lips here are among the most prominent: Copernicus, Darwin, Freud, Einstein. All were treated with initial skepticism and often something other than a gentle intellectual critique. Is it possible, the skeptic must ask, that J. B. Rhine, the founder of the first experimental laboratory for the study of the paranormal, belongs in this company? After all, these others eventually came to have their perspectives accepted and, when they were, unlike the proverbial pea, they truly altered the course of science. Is Rhine a Freud? I doubt it.

Freud may have distressed the Victorians who were disturbed over the possibility that sex was such a critical motivational factor and he may have received more than his share of abuse from the scientific community for the looseness of many of his theoretical mechanisms and analytical

interpretations, but he never put forward a proposition the acceptance of which entailed the negation of the first law of thermodynamics, or implied time reversal, or placed effect before cause. Rhine, his co-workers, and their intellectual descendants have done just these things. Why should the rest of the body scientific accept these entailments, why should we assume that cause precedes effect everywhere but in the parapsychologist's laboratory, that time is linear everywhere except in precognitive events, that the inverse square law holds for all energy propagation except that of the psychic telepath?

We need to pursue this theme further. With regard to psychoanalysts, where their points of view were *not* generally accepted was when they in fact did move to entertain processes that went against the canons. Specifically, when Wilhelm Reich extended psychodynamic theory in a way that did violence to the principles of thermodynamics, as when he hypothesized the existence of "orgone energy," he *was* dismissed out of hand. Now it is important to realize that there was and still is no simple and objective method of evaluation that could possibly demonstrate that Freud could handle more of the data than could Reich, or that Freud's theory made more accurate predictions than did Reich's, or that Freud's characterizations of psyche were more parsimonious than Reich's, or that Freud's method of therapy was more effective than Reich's, etc. Moreover, Reich could not possibly have offended more people more deeply than did Freud. Reich was rejected because his system did violence to the body of science; Freud was taken seriously and his point of view woven in with the rest of science because his did not. It is as difficult today to take Rhine and his intellectual descendants seriously as it was to accept the Reichians a few decades ago.

There is much more that could be said on these issues but my point is, I hope, made. Even if I have changed no minds, at least I have given a codification of the basis of skepticism as regards matters paranormal. This should provide a bit of balance to the dispute. A good deal of recent psychological work has been invested in trying to explicate why believers in the paranormal are believers (see, e.g., Marks and Kammann 1980, Chaps. 12 and 13; Siegel 1980); my intention is to provide a bit in the way of explication of why skeptics are skeptics. It seems appropriate to haul out that old tennis metaphor here: the ball is currently where it belongs, in the parapsychologists' court. Satisfy the canons and recognize the manner of action of the "law" of psychological inertia and your discipline will be folded in with the existing domains of knowledge—and every honorable skeptic will embrace your new science along with all attendant adjustments that, of necessity, accompany true scientific revolutions.

References

Hansel, C.E.M. 1980. *ESP and Parapsychology: A Critical Re-evaluation.* Buffalo, N.Y.: Prometheus Books.

Marks, D., and Kammann, R. 1980. *The Psychology of the Psychic.* Buffalo, N.Y.: Prometheus Books.

Palmer, J. 1981. Review of Hansel (op. cit.). *Contemporary Psychology,* 26: 9-10.

Schmidt, H. 1969. Precognition of a quantum process. *Journal of Parapsychology,* 33: 106.

Siegel, R.K. 1980. The psychology of life after death. *American Psychologist,* 35: 911-31.

Soal, S.G., and Bateman, F. 1951. *Modern Experiments in Telepathy.* London: Faber & Faber Ltd.

Targ, R., and Puthoff, H. 1974. Information transfer under conditions of sensory shielding. *Nature,* 251: 602-07.

_____ 1977. *Mind-Reach.* New York: Delacorte. •

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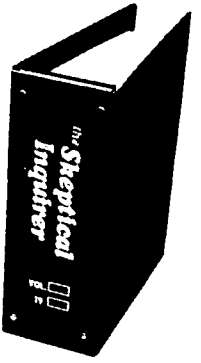

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Book Reviews

Along the Borderlands

Science and Unreason. By Daisie Radner and Michael Radner. Wadsworth Publishing Company, Belmont, Calif. 1982. 110 pp. $6.95, paper.

Reviewed by George O. Abell

Readers of the SKEPTICAL INQUIRER are for the most part already aware of the economic, cultural, and scientific waste of pseudoscience, and of the real dangers that are often involved as well. But we are constantly confronted by well-meaning friends, students, and acquaintances asking, "Yes, but how can you be so sure; after all, was not Galileo rejected in his time?" or "Remember what Arthur Clarke has written: that any advanced civilization would have a technology indistinguishable from magic," or, "Well, after all, anything is *possible*." I (and, I suspect, most readers) try to answer these cliches as best I can, but I often feel that there must be better answers.

Better answers are now available in this clear, succinct, and welcome book by Radner and Radner, *Science and Unreason.* Nowhere does the book give the fields or affiliations of the authors, but the publisher informed me that they are man and wife, both with Ph.D.'s in philosophy. Daisie Radner is now on the philosophy faculty at SUNY-Buffalo, and Michael Radner is in the Philosophy Department at McMaster University in Hamilton, Ontario. Each is *my* kind of philosopher! They write none of the kind of nonsense we read in, for example, Feyerabend, to the effect that scientists are afraid of new ideas. The Radners understand science and scientists, and display excellent insight into the way science works.

The facts are that scientists are human and are subject to the same emotions, prejudices, jealousies, and fears as is anyone else. But by their professional training scientists by and large are less prejudiced about new ideas than most people (and certainly not afraid of them—Nobel prizes are given for new breakthroughs, not for defenses of the status quo). But, also, while more open-minded than most people, scientists are—again because of their training—less gullible about things

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scientific than the general population. Mind, scientists make mistakes—often whoppers. Sometimes they go off on terrible wild-goose chases over spurious data, and sometimes scientists are extremely gullible in areas outside their own expertise. But these failings reflect lack of adherence to the rigor of the scientific method and to the peer criticism they are trained to seek and heed—a breakdown in the critical judgment scientists are trained to utilize in their work. They are the failings of scientists (that is, people), not of science itself.

The Radners understand the rigorous tests required of a new idea before its acceptance by the scientific community, as well as the often capricious ways in which new ideas are first conceived. They understand the tortuous ways that these ideas are sorted out—the bad rejected and the good reconsidered in the process of scientific evaluation. Science, they realize, for all of its limitations, is a self-correcting discipline, and one that has well demonstrated its validity as a means of probing nature.

Then what of pseudoscience—that mixed-up panoply of nonsense that flashes at us from all sides, parading as science and confusing the uninformed with its reasonable-sounding platitudes and arcane jargon? How can one distinguish it from true science? And, to be sure, "true science" is the practice of human beings who are subject to error too. So how is wrong science, or bad science, or fringe science to be distinguished from the real thing? For that matter, what is the real thing? Surely Newtonian mechanics was real science for more than 200 years, yet we now know that it is wrong in the regime of speeds near that of light, in intense gravitational fields, and in the realm of the atom. Relativity and quantum theory have revolutionized science in the twentieth century. Is not, then, "anything possible"?

To answer such questions, the Radners first take us on a stroll through the fringes of science. They do not attempt to catalogue pseudosciences. Instead, they give us an introduction into the forms they take. We read of the flat-earth theory (which most people would reject today), of ancient astronauts introducing wonders to our ancestors (which many millions of people accept today), of biorhythms (an idea exploited in coin machines at most airports and elsewhere), of creationism (and most Americans, according to polls, believe it to be only fair to present both creationism and the theory of evolution and let elementary and high-school students make up their own minds about the truth), and more.

Then the authors address the question of who is a scientist and who is a crank. They point out that Galileo, although a scientific heretic in a way, was not regarded as a crank in his day by his scientific colleagues; on the contrary, he was one of the most respected scientists of his time. In this chapter the authors do a fine job of describing the difference between a scientist and a pseudoscientist. It is not just that one is right and the other wrong. The scientist researching at the frontier of new knowledge is usually wrong in his latest hypotheses, but these ideas, all to be tested, are at least consistent with what is known. The pseudoscientist, on the other hand, has ideas that may have been tenable hundreds or thousands of years ago but not in the light of what we have learned since. The problem, of course, is that it takes a lot of work and study to reach the frontier where you are in a position to judge what is new and what is not new. This is true, of course, of all of us—scientists and nonscientists. Each of us is an expert in his own specialty, but not in others. The shoemaker, for example, knows what works and does not work in shoe

manufacturing, and to make a breakthrough he has to understand a lot of technical details about the making of shoes.

The Radners' third chapter is a catalogue of the fingerprints of a pseudoscientist. There are many, and some or all are almost invariably present in the work of the pseudoscientist but almost never in that of a real investigator at the frontier of knowledge. Such marks include the appeal to long-rejected ideas, the passionate search for mysteries (and the invention of mysteries that do not exist), the use of the irrefutable hypothesis, and many more.

Next the authors explain their classification of cranks, quacks, and crooks. They reserve the term "quack" for one engaged in medical chicanery, while I would call any pseudoscientist who knowingly presents false ideas (for example, von Däniken) a quack and would reserve "crank" to describe the well-meaning, often brilliant person who really believes that his ideas are right, even in the face of tens or hundreds of years of acquired knowledge that demonstrates their fallaciousness (for example, Velikovsky). But this is a semantical quibble.

After a discussion of the perils of indiscriminate fact gathering (Chapter 5), the Radners turn to the proposition that "anything is possible" (Chapter 6). This is one of the best parts of this little book. There are logical impossibilities (for example, self-contradictory statements, such as, "The cat is and is not a dog."), and physical impossibilities ("The cat is a dog"). The most committed scientific crank would hardly argue the former. But many argue the equivalent of the latter. How seriously need we take the proposition that a cat is a dog? Is there credible evidence to suggest that a cat, after all, could be a dog? How should or could we evaluate such evidence? Is there a competition between the theories that a cat is a dog and that a cat is not a dog? Of course the cat-dog example is hypothetical and somewhat absurd, but is it much more so than the notion that a human being can spontaneously burst into flames, burn up, and not leave a trace or even sear the chair that the person was sitting on? The question of physical possibilities is a very real one, and the Radners' discussion of it is the best I have seen.

Even in real science there are borderline cases. The authors discuss these in Chapter 8. What about Alfred Wegener, the German meteorologist who proposed continental drift in 1915? He was derided by some scientists, but not by all. He had some good points, and many scientists were impressed with these. But he also had some demonstrably wrong ideas, especially about the basic mechanism of continental drift. He was prophetic, and at least partly right. Was his idea a contribution or was it pseudoscience? Read *Science and Unreason.*

I consider this book so important that I want all of the liberal-arts students in my classes to read it. I think the message is a must for students taking an introductory course in science, especially those who do not know astronomy from astrology and who believe that "anything is possible." But I already assign a rather expensive textbook for my course. Should I ask the students to spend an additional $7.00 for a splendid statement that can and should be read in one evening?

Perhaps the main message of *Science and Unreason* could be tightened up to half its present length and printed in an inexpensive brochure, of which our department could afford to buy hundreds of copies to distribute without cost to the students. I hope that Radner and Radner and their publisher consider the possibility of preparing a statement that can be put out very cheaply, so that every year literally millions of students and lay people could read it.

Let me close with a few quotes from the final chapter of *Science and Unreason:*

> [Some] people presume that, because there are questions about the universe not answered by current scientific theories, there is a vast domain in which they can cavort unhindered by the restraints of reason. [p. 100]

> Scientific understanding demands . . . reasons and evidence. It demands links with what one already knows. Pseudoscience simply doesn't give that kind of understanding . . . One must be careful . . . not to fall into the "two sides of the question" trap. Pseudoscience may provide an interesting way to focus attention on certain points of science, but it does not supply material for scientific debate. [p. 101]

I hope the Radners' clearly written essays find a wide audience. •

The Further Adventures of Betty

The Andreasson Affair, Phase Two. By Raymond E. Fowler. Prentice-Hall, Englewood Cliffs, N.J. 1982. $10.95.

Reviewed by Ernest H. Taves

Mr. Fowler here brings us the further extraordinary adventures of Betty Andreasson, last reported in these pages three years ago. (See my review of *The Andreasson Affair, SI* Winter 1979-80.) If you thought those experiences curious, this new volume will astonish beyond your expectations.

To recapitulate briefly: In 1967 Betty was abducted aboard an alien spacecraft. In 1975 this was brought to the attention of the Center for UFO Studies (CUFOS), and in 1977 Fowler's first investigation began. During an extended series of regressive hypnotic sessions, the history of a strange odyssey was obtained. Betty had been examined, she recalled, by aliens who, using a nasal probe, withdrew from her head a BB-like object; she had been taken through a crystal structure to confront an enormous bird; she had heard the voice of God. And there was more, much more. Fowler's first investigation ended in the fall of 1977. That was where *The Andreasson Affair* left us.

In 1978 Betty married Bob Luca, and he is an important part of our story. (He had first sought to meet Betty because of a previous UFO experience of his own.) He and Betty came to Connecticut to live and were immediately besieged by a variety of phenomena usually attributed to "poltergeists." Betty and Fowler had kept in touch. He was impressed by her reports, but his own commitments gave him no time to continue the investigation. He assigned a CUFOS investigator to the case—Richard Nycz—who ran into scheduling problems and was replaced by Lawrence Fawcett, and Fred Max, a qualified hypnotist, was also engaged.

Ernest H. Taves is a psychoanalyst and CSICOP scientific consultant. He is coauthor with the late Donald H. Menzel of The UFO Enigma *(Doubleday, 1977) and is working on a biography of Joseph Smith, Jr., the Mormon prophet.*

Fawcett is a police officer with experience in both police and UFO investigation. Max is a professional hypnotist with a B.S. in behavioral psychology.

At the first meeting Betty was apprehensive, so Bob Luca agreed to be the first subject. (He had also been a subject in an earlier investigation, in December 1977, but had become too frightened to continue. Now, however, he was willing to have another go at it.) And at this first session hypnotist Fred Max received, to use Fowler's phrase, a baptism of fire.

The intent of the first session was to take Bob back to his 1967 abduction. At one point, though, Max said they would be going back to Bob's very first sighting of a UFO. In consequence they found themselves in 1944, when Bob was five years old. This was entirely unexpected. Bob was on a swing in his backyard and was approached by a ball of light. There were people in the light and they talked to Bob, and he became very frightened indeed. When the session was over, Max said he had never seen such fear in a subject under hypnosis.

Bob agreed to further sessions. It was discovered that the entities in the ball of light had told Bob something about "prepare good mankind." They had also told him other things, which he was not supposed to tell anyone about. Max and Fawcett tried every trick they could think of, but were entirely unable to discover what Bob had been told.

In the first session (in this second investigation) with Betty, they went back to *her* very first UFO experience—and found that she was seven years old. She was sitting in her backyard waiting for a friend when a small ball of light appeared. It circled around her head, buzzing like a bee, and frightened her very much. The object came and hit her in the center of her forehead, and stuck there. It felt like a cold marble. Beings spoke to Betty and told her that in five years she would be able to see "the *One*." They told her that all she would remember of this would be the bee buzzing around her head. When Betty's friend arrived, Betty told her she had been bitten by a bee, but the friend could find no evidence of such a bite.

Bob was subsequently taken back to his 1967 experience and, under hypnosis, described being taken aboard a spacecraft, where he was told to go into a small room and remove his clothes. Some "little people" put him on a table, and he couldn't move. One of the little people suddenly changed into a pillar of light. Bob was very frightened. Eventually he refused further hypnosis. Betty continued, and related no less than *seven* "close encounters of the third kind." All of these incidents can only be described as bizarre. For example, when Betty was twelve an alien emerged from a hole in the woods to confront her. He wore a funny suit that bore buttons and hieroglyphiclike symbols. He pushed one of the buttons and it glowed. A little ball came out and went straight to Betty's forehead. In another incident she went through a Great Door and met the One. During this session she spoke in a strange language, and her appearance was of a person enraptured. At one point she cried and said, "Father loves the world so very much." But Betty steadfastly refused (was unable) to reveal anything about who or what the One was.

The totality of imagery produced in these sessions does boggle the mind. Fowler confesses that at one point he came close to losing interest in the Andreasson Affair—presumably because the data being elicited were so extraordinary. His objective and logical way of reasoning was, he said, sorely tried. Even so. What emerges from all this is, of course, that Betty and Bob were selected by aliens, at very young ages, for missions and purposes as yet to be determined. (And they've been under observation ever since. Black unmarked helicopters

follow them around.)

Fowler suggests that he himself, and his books, may be an integral part of some master plan, in which he, willy nilly, is playing his own programmed role.

What are we, then, to make of all this? I regret to say that I make of it what I made of the first investigation. The indicated analyses have not been made, the relevant questions have not been asked. (I add, parenthetically, that Fowler is aware of my comments on his earlier investigation, because he quotes rather extensively from my review, though he does not address my objections about methodology.) Help from the outside has not been sought. Betty has not been interviewed in depth, *outside* of hypnosis, so far as I can determine.

Example: In at least one session Betty speaks in tongues. This is not a new phenomenon, it goes back to Apostolic times and has relatively recently reappeared as an integral part of Mormon doctrine. I would like to know if Betty is familiar with this rather odd concept in any other context than that encountered under hypnosis. And here again, as in the first investigation, we find a great glass door. Betty stands on both sides of it at the same time—i.e., standing on one side, she sees herself also on the other. I *still* want to know Betty's associations (if any) with *Alice Through the Looking-Glass*. I suggest, that is, that an impartial psychoanalyst interview Betty at length.

One might, perhaps, ask, What does it matter, why bother? We should bother because if *any* of this (let alone the master plan) can be accepted at face value we are in the presence of the most momentous happenings in this or any other century.

The question of fraud arises in all such cases. Fawcett thought when he first read of Betty's adventures that it might all be an elaborate hoax. That was before he met the Lucas. After the investigation he no longer entertained that theory, though he recognized that the whole affair was hard to believe. "It is so unbelievable," he said, "that it *is* believable!" It might be added that he himself was brought into the case in an unusual way—in one session he saw for a brief time a light upon a curtain, a light that shortly vanished, a light for which no rational explanation could be found.

Though the question of hoax arises, I make no such accusation here. The Lucas have convinced many people of their honesty.

In the face of a bizarre history, I make a bizarre proposal. How would it be (should the principal characters agree) to initiate Phase Three of the Andreasson Affair? Let CUFOS and CSICOP jointly establish an investigative team, three members (or two or four) named by each, said team to work together amicably in search of truth. I submit that would be worth doing. ●

Some Recent Books

Listing here does not preclude more detailed review in a future issue.

Billig, Otto. *Flying Saucers: Magic in the Skies.* Schenkman Publishing Co., 3 Mount Auburn Pl., Cambridge, MA. 02138, 1982, 265 pp., $16.95 cloth, $9.95 paper. Billed as a "Psychohistory," this is a critical examination of the flying saucer phenomenon from a psycho-social point of view. The author, a professor of clinical psychiatry at the Vanderbilt University School of Medicine, has written an interesting and useful book exploring the emotional and psychological sources of belief in saucers in the absence of concrete evidence. The book draws on psychology, anthropology, and medicine in seeking to understand how and why sincere people report seeing extraterrestrial spacecraft, manifestations that the author concludes are "in the mind of man."

Brian, Denis. *The Enchanted Voyager: The Life of J. B. Rhine.* Prentice-Hall, New York, 1982. 367 pp, $16.95. An authorized biography of the founder of modern parapsychology in the U.S. Both a portrait of Rhine and a history of parapsychology.

Eldredge, Niles. *The Monkey Business: A Scientist Looks at Creationism.* Washington Square Press/Pocket Books, New York, 1982. 157 pp., $2.95. One of the first of the new books by evolutionary scientists in response to the political tactics and scientific distortions of creationists. This one, by a curator of the American Museum of Natural History, is refreshing in its forthright defense of science. The earlier, more general chapters are more successful than some of the later, specialized ones.

Forrest, Bob. *Velikovsky's Sources,* Parts 3 and 4. $12.00 for the two, $24.00 for the entire set, Parts 1-4. (Self-published by the author, 53 Bannerman Ave., Prestwich, Manchester M25 5DR England. U.S. residents may order from and make checks payable to Robert H. Schadewald, Rte 1, Box 129, Rogers, MN 55374.) A continuation of the examination of Velikovsky's use (and misuse) of historical sources (see listing in Spring 1982 *SI,* p. 72).

Heftmann, Erica. *The Dark Side of the Moonies.* Penguin Books, Melbourne, Australia, 1982, 290 pp. (to be published in the U.S. in late 1982). A former Moonie, deprogrammed from the Rev. Moon's cult, explores the issues and power of mind control. Contains four parts: "Heavenly Deception," "Free Will But No Choice," "Return to Reality," and "From the Outside Looking In."

Randi, James. *Flim-Flam!* Prometheus Books, Buffalo, N.Y., 1982. 340 pp., $9.95, paper. Updated trade paperback of Randi's hard-hitting examination of a wide range of paranormal, supernatural, and occult claims and those who research and promote them. The hardcover version has been out of print since shortly after its publication in the fall of 1979. Our reviewer, Elie Shneour (Summer 1981), called it a "perceptive and hard-hitting book" that "covers more paranormal territory in a more up-to-date manner than any other book on the subject."

Randi, James. *The Truth About Uri Geller.* Prometheus Books, Buffalo, N.Y.,

1982. 325 pp., $8.95, paper. Substantially revised and expanded edition of Randi's 1975 book *The Magic of Uri Geller*, the tough but entertaining exposé that contributed to the Israeli entertainer's downfall as a boy-wonder of the "psychic" world.

Sabloff, Jeremy A., ed. *Archaeology: Myth and Reality* (Readings from *Scientific American*). W. H. Freeman, San Francisco, 1982, 101 pp., $17.95 cloth, $8.95 paper. Seven articles on Stonehenge, the Nazca lines, and pyramids (both Old World and New). They are collected here to help combat the widespread popular acceptance of pseudoarchaeological ideas by communicating to the public professional perspectives on these frequently sensationalized antiquities. An excellent introductory essay by Sabloff, chairman of the Anthropology Department at the University of New Mexico, reviews some of the pseudoarchaeological literature and shows how current scientific knowledge fails to support its popularized contentions. He also distinguishes between the methods of professional archaeologists and pseudoscientific writers on archaeology who disregard the scientific method.

Shepard, Leslie, ed. *Encyclopedia of Occultism and Parapsychology—Supplement*. Gale Research Co., Detroit, 1982. 231 pp. $70.00. A hardbound supplement that gathers all material from four softcover update supplements issued since publication of the original encyclopedia in 1978. Includes a 90-page cumulated general index. This *Supplement* has the same virtues and faults as the encyclopedia itself, outlined in R. Hyman's lengthy review in *SI* (Summer 1979): a useful reference work despite open pro-paranormal biases. Items include some skeptical material, but the tendency is to be generous in granting credence to pro-paranormal testifiers.

—*Kendrick Frazier*

Articles of Note

Angier, Natalie. "Unraveling the Shroud of Turin." *Discover*, October 1982, pp. 54-60. Responsible look at the shroud evidence.

Bernstein, Jeremy. "Accepting Scientific Ideas." *New York Times*, April 28, 1982, Op-Ed page. A short guide to how a scientist can tell "an unconventional idea from a crank idea." Bernstein applies these three questions: "1. Does it explain anything? 2. Does it predict anything? 3. Is it connected to anything?"

Burton, Maurice. "The Loch Ness Saga." *New Scientist*, June 24, July 1, July 8, 1982. A three-part essay by a British naturalist on the origins of the "Loch Ness Monster."

Cherfas, Jeremy. "Mind-Bending Research." *New Scientist*, Aug. 12, 1982, pp. 444-45. Brief, skeptical report of two attempts to investigate psychic forces: the "microscopic psychokinetic metal bending" (Micro PKMB) research and claims of English grad student Julian Isaacs's and John Palmer's use of

hypnosis to induce acceptance of psychic phenomena in research subjects. Isaacs replies with a complaining letter in the Aug. 26 issue, p. 579.

Cole, John R. "Anti-Evolutionism and the Effects of the Scopes Trial." *Proceedings of the Iowa Academy of Science*, 89 (2): 50-54, 1982. An examination of anti-evolutionism as an aspect of the anti-intellectual tradition, and its variations over the decades.

Craig, Robert B. "Loch Ness: The Monster Unveiled." *New Scientist*, Aug. 5, 1982, pp. 354-57. A Scottish engineer's detailed thesis that many sightings are due to ancient waterlogged pine trees that eventually rise to the surface due to the internal production of gases from decay. Resin and tar oil blisters or extrusions filled with gas bubbles become buoyancy tanks that raise the log to the surface, where it pokes above the waves with a hiss of escaping gas as the blisters burst. Then it sinks again.

Cowen, Robert. "Soviet Rockets Wear UFO Masks." *Technology Review*, Aug.-Sept. 1982, pp. 4-5. Another report on the identification of some recent Soviet and Argentine UFO reports as rocket launching and staging phenomena (see *SI*, Fall 1982).

Edwords, Frederick. "Creation-Evolution Debates: Who's Winning Them Now?" *Creation/Evolution*, Issue 8, Spring 1982, pp. 30-42. Lengthy report on recent string of successes by well-prepared scientists in public-debate confrontations with creationists. With this accumulated experience, Edwords now suggests that scientists challenge creationists to debate, but on very specific subtopics that would force creationists to make their case. Other articles in this issue include "Answers to Creationist Attacks on Carbon-14 Dating" by C.G. Weber, "Kelvin Was Not a Creationist" by S. G. Brush, and "Are There Human Fossils in the 'Wrong Place'?" by E. C. Conrad.

Ferris, Timothy. "The Candy Store of Physics." *Science 82*, October 1982, pp. 100-02. Review of four books searching physics "for clues to a new metaphysics" finds one of them (Pagels's *The Cosmic Code*) profound, the other three (Capra's *The Turning Point*, Dossey's *Space, Time, and Medicine*, and LeShan and Margenau's *Einstein's Space and Van Gogh's Sky*) "profoundly silly."

Gardner, Martin. "Eysenck's Folly." *Discover*, October 1982, p. 12. Critique of British psychiatrist Hans Eysenck's acceptance of Michel Gauquelin's neo-astrology hypothesis of unconventional (to classical astrology) effects of planetary position on human personality and career performance.

Gould, Stephen Jay. "Creationism: Genesis vs. Geology." *The Atlantic*, September 1982, pp. 10-17. Examines the "richest source" of testable creationist claims—"flood geology"—and shows how the scientific evidence conclusively refutes them.

Gould, Stephen Jay. "The Quack Detector." *New York Review of Books*, Feb. 4, 1982, pp. 31-32. An excellent essay, in the guise of a review of Martin Gardner's *Science: Good, Bad, and Bogus*, on pseudoscience and occultism. There is an especially good section on one aspect of the problem critics often have difficulty articulating: the dangers of ready acceptance of pseudoscience. Gould, like Gardner, chides his fellow scientists for believing they have the tools to detect the tricks of "psychics." "If every parapsychologist followed the simple rule of always including a professional

magician in any test of people claiming extrasensory powers, millions of dollars, thousands of hours, and hundreds of reputations would be saved." As for Gardner, Gould writes: "Beleaguered rationalism needs its skilled debaters—writers who can combine wit, penetrating analysis, sharp prose, and sweet reason into an expansive view that expunges nonsense without stifling innovation, and that presents the excitement and humanity of science in a positive way. . . . Martin Gardner . . . has become a priceless national resource."

Matossian, Mary K. "Ergot and the Salem Witchcraft Affair." *American Scientist*, July-August 1982, pp. 355-57. University of Maryland historian and folklorist examines the Salem court transcript, the ecological situation, and recent literature on ergotism and finds that objections to the ergot-poison hypothesis for the Salem "bewitchment" symptoms (L. R. Caporael, *Science* 192: 21-26 [1976]) are not as valid as originally perceived. She supports Caporael's view that those who displayed the bewitchment symptoms in 1692 were indeed actually suffering from a disease known as convulsive ergotism, caused by a fungus that grows on rye.

McKusick, Marshall. "Psychic Archaeology: Theory, Method, and Mythology." *Journal of Field Archaeology*, 9 (1982): 99-118. A major critical review article on the claims of psychic archaeology, with emphasis on the work and assertions of Jeffrey Goodman, Hans Holzer, David Zink, and Edgar Cayce. The article seeks to end the absence of discussion in professional journals of "the fallacies of psychic archaeology" and the "occult challenge," which have grown unchecked "despite errors, anachronisms, and false premises in their astonishing claims."

Mohs, Mayo. "Bronze Age America." *Discover*, August 1982, pp. 93-95. Critical review of Barry Fell's latest book, which claims Nordic traders occupied Canada 3,500 years ago.

"Science, the Bible, and Darwin." *Free Inquiry*, Summer 1982. Entire issue devoted to four related subjects: "Darwin, Evolution, and Creationism," "The Bible Re-Examined: A Scholarly Critique," "Ethics and Religion," and "Science and Religion." Adaptations of papers given at an international symposium on the subject at SUNY-Buffalo in April 1982.

Speers, W.J. "Rescue Reason from Pseudoscience." *Columbia* (S. C.) *Record*, July 11, 1982. Feature on the entertaining anti-pseudoscience performances of "Captain Ray of Light," also known as Douglas Stalker, University of Delaware philosopher (see *SI*, Spring 1980).

—*Kendrick Frazier*

ANNOUNCEMENT

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From Our Readers

The letters column is a forum for views on matters raised in previous issues. Letters are welcome and are more likely to be published if they are typed and double-spaced. Some may have to be edited.

Austin Society to Oppose Pseudoscience

I thought this might be an opportune time to write you about the progress of our Austin Society To Oppose Pseudoscience (A-STOP).

Just a year ago this group was organized by Prof. Dennis McFadden of the University of Texas Psychology Department and me, using a list of local subscribers provided by the SKEPTICAL INQUIRER. Professor McFadden had contacted me after a letter I wrote objecting to police use of "psychics" appeared in our local paper.

Because we had no one to pattern ourselves after, we spent some months on organization and decisions on how to delineate and carry out our purpose. A statement of our objectives taken from the by-laws is as follows:

> The Austin Society To Oppose Pseudoscience is a nonprofit educational organization whose objectives are:
>
> To oppose, especially in the Austin area, the claims of pseudoscience and the paranormal, in the media and in the classroom.
>
> To counter nonskeptical news-media reports of paranormal claims and of pseudoscience, and to provide alternative, naturalistic explanations for such claims.
>
> To provide a forum for discussion and the dissemination of information.

As you will note, we are especially concerned with the local media and with education. Organized letter-writing and TV and radio appearances have been our main course of action. One of our members, David Slavsky, an astronomer, now has his own weekly radio show debunking pseudoscience.

Recently, when a "psychic" was called in by the Round Rock City police department, near Austin, we were in a better position to act than we were a year ago. Through our PA system (Psychic Alert), we fired off a salvo of letters and phone calls to the media. We sent a delegation to a local paper that had written an uncritical account. Our procedure is to be restrained, scientific, and helpful. We point out how these pseudoscientists operate and how real science and professionalism in journalism operate. We talked to the Austin police about our organization and found out where they stood on the use of "psychics." (As we expected, they would use more professional methods of solving crimes.)

We communicate personally as much as possible and carry with us copies of our detailed statement of purpose, a list of members who can be consulted on specific topics of pseudoscience, and copies of the SKEPTICAL INQUIRER.

Living in a university town, we have a number of professor and student members and are most fortunate to have Rory Coker among our members. He is a University of Texas physics professor who taught a course on pseudoscience in the physics department last term. Because of his thorough knowledge, quick wit, and showmanship, we have a star performer for the

media. He also presents several magic shows every year, always to an overflowing house.

As a result of Professor Coker's interest in science education, we have made contact with the university's Science Education Department and the science supervisor for the Austin public-school system. Coker addressed teacher-training sessions this summer and A-STOP was invited to present its material. One of the things we learned is that there is practically no teacher awareness of pseudoscience as a pedagogical problem. We know that will change. We are rating science magazines and trying to get copies of the SKEPTICAL INQUIRER into all the public and school libraries. We have had discussions on how to handle ourselves in debate with pseudoscientists, how to handle the media, and how best to present our case. Professor Coker has assembled an extensive, well-organized bibliography.

We have based our approach pretty much on the policies of the SKEPTICAL INQUIRER. We do not discuss religion. We use the magazine as a constant source of material to back up our statements.

On a strictly personal level, our monthly Sunday-afternoon meetings have been a pleasant opportunity to meet like-minded people, to share ideas, books, and stimulating programs, and to give each other encouragement in our fight for scientific thinking and reporting.

At a recent workshop held by the Austin School District for all science teachers, titled "The Nature of Pseudoscience and the Nature of Scientific Inquiry." Professor Coker gave the opening address, "The Nature of Pseudoscience." We were pleased that the school officials recognized the problem of pseudoscience and helped to make a thorough presentation of the issues. A-STOP had composed over 15 one-page fact-sheets on different pseudosciences to hand out and had the SKEPTICAL INQUIRER and many books on display.

The responses we got from the science teachers were very gratifying and prompt us to ask if our approach might be useful as a means of leading teachers and students into more interest in science.

One result of our encounter with the school system was that a good many more anti-pseudoscience books were purchased by our school libraries this year. Librarians are eager for ideas to offset the dozens of popular pseudoscience books in the libraries.

I hope our experience will be an encouragement to others to organize locally. If we can be of any help please write to our organization at P.O. Box 3446, Austin, TX 78764.

Charlotte M. Cranberg, President
Austin Society To Oppose
Pseudoscience
Austin, Tex.

Teachers and pseudoscience

As part of the 93rd Annual Scientific Meeting of the Astronomical Society of the Pacific, we offered a two-day workshop for schoolteachers on incorporating more astronomy in the school curriculum. Included in the discussion was about 45 minutes on debunking pseudoscience, which included the distribution of an annotated bibliography on scientific views of fringe areas. (As you would expect, the SKEPTICAL INQUIRER appeared frequently among our recommendations.)

I am very pleased to report that in their evaluations the approximately 100 teachers who attended uniformly singled out this portion of the workshop for praise and urged us to make more of such information available.

While you still occasionally hear a university or college professor exclaim that we should not dignify the pseudosciences by rebutting them, it seems that at the elementary and high-school levels, teachers are deluged with student questions in these areas and welcome the kind of objective, rational informa-

tion CSICOP can provide.

If we can continue to make every effort to bring the information in the SKEPTICAL INQUIRER to teachers at the lower levels, perhaps fewer and fewer students will grow up believing that the stars determine their love-lives or that our ancestors were too dim-witted to start civilization without the help of extraterrestrial visitors.

Andrew Fraknoi, Executive Officer
Astronomical Society of the Pacific
San Francisco, Calif.

Radio and planets

The article by Jean Meeus (*SI*, Summer 1982) on the "Correlation Between Radio Disturbances and Planetary Positions" was not well directed. He did not address himself to the real crux of the matter, which is, can radio disturbances be predicted by planetary positions?

We can likely find a good correlation between average monthly temperatures in Kansas City and the sale of ice cream cones in Dallas. We can make a fairly good prediction of both, and we can also propose an indirect mechanism to explain the correlation.

It would seem to me more appropriate if Meeus would test the predictability of radio disturbances based on John Nelson's procedures.

B. Fremerman
Kansas City, Mo.

Jean Meeus replies:

The aim of my article was to show that we obtain a peaked curve between two sets of events when we use Nelson's procedure, even when the two sets are completely uncorrelated, as for instance planetary configurations and Cosmos satellite decays. This proves that Nelson's peaked curve proves nothing.

Since there is no *correlation between planetary configurations and radio disturbances, no radio disturbances* can *be predicted on the basis of planetary positions. Therefore, how can the predictability of radio disturbances be tested, as suggested by Mr. Fremerman? If Mr. Fremerman knows how to make predictions using Nelson's "method," then perhaps he could use this same method to predict decays of Cosmos satellites, since these decays present a peaked curve too!*

There are more radio disturbances with smaller Dt values than with larger ones, simply because there are more days *with smaller Dt values. But on each day the probability of an event is the same, independent of the value of Dt.*

Great Lakes pseudomystery

I enjoyed Paul Cena's examination of Jay Gourley's *The Great Lakes Triangle* (*SI*, Summer 1982, pp. 38-39, 42-46), in which he points out numerous errors and Gourley's failure to thoroughly investigate the incidents he reports.

Mr. Gourley's investigative zeal certainly seems to have waned. In 1975 he received considerable publicity as the *National Enquirer* reporter who ransacked Henry Kissinger's garbage in search of news. He must have acquired a taste for trash.

William R. Oliver
Associate Professor of Chemistry
Northern Kentucky University
Highland Heights, Ky.

Paul Cena missed one very good reason, and the most likely one, that a sports parachutist might release a good canopy and plunge to his death.

The reason is suicide. The sport parachuting organizations publish a list of deaths in the sport each year and the findings as to the reasons. Several suicides are reported each year. These are known suicides, with traditional

notes and other indications left behind. As Cena points out, therefore, Gourley's statement that "no one has been able to explain" the death is probably false. And even if in this instance no reason for the death was determinable by the FAA, the frequency of known suicides committed in exactly this fashion argues against there being any mystery.

Michael McCarthy
San Lorenzo, Calif.

Sea-ing triangles

Misinformation can come from the most unexpected sources. In a recent showing of a movie about the Sargasso Sea in an oceanography class at the University of Oklahoma, the narrator started out by saying that the Sargasso Sea is in the middle of the Bermuda Triangle (!); that the famous torpedo bomber-squadron was on a research flight to the Sargasso Sea; that only one radio message—a distress call—was received from them, and that the disappearance of the Martin Mariner search-plane was totally mysterious. These statements, of course, are totally at odds with Larry Kusche's carefully researched account.

I was surprised to discover that this movie was produced by the U.S. Navy: (Ocean Desert, MN—10844 Uncl. Col.; United States Navy, Naval Air System Command: Investigation by Navy and private institutions of Sargasso Sea). I can only hope that our navy's navigators know more about geography than the script writer who put the Sargasso Sea in the middle of the Bermuda Triangle!

Frank J. Sonleitner
Norman, Okla.

Record business

Dr. Arthur Lintgen's ability to identify record-grooves by sight, as mentioned by James Randi in your Summer and Fall 1982 issues, is not without parallel.

In the 1930s, when all film sound was photographically recorded, several experimental films were made using sound-tracks drawn by hand. Len Lye, of the British Post Office Film Unit, was a pioneer in this.

He and his team used the variable-area (as opposed to variable-density) type of track, such as is still used today and which has patterns similar to record-grooves, albeit larger. They drew sound-patterns on a magnified scale, then photographed the drawings down to standard track dimensions, and they built up quite an armory of techniques, such as developing a collection of templates for drawing repeated wave-forms.

In the 1960s I worked on more conventional films with one of Len Lye's team, Jack Ellitt, and was impressed to discover that he could read the words on a variable-area sound-track by eye, with about the ability of a good lip-reader.

I believe that, in the days before the cutting-rooms began to work with magnetic sound only, some experienced sound-editors could do the same thing, but unfortunately this is now an obsolescent skill, like watch-making or pre-anesthetic high-speed surgery. Or indeed like the drawing of sound-tracks by hand, the effects of which can now be simply achieved using a synthesizer.

Ean Wood
London, England

In 1961, at the age of 18, I visited two uncles in California, one of whom I had not seen since I was a toddler. At one point we were discussing paranormal phenomena and he made an assertion that might relate to the techniques Randi was looking for. "You used to be psychic," he told me. "Before you were old enough to read you knew what was on every record. When we asked you how you did it, all you would say was, 'By the lines.'"

I remembered very clearly what he was talking about, but I was greatly surprised and amused by his interpretation. That was the golden time of the 78 rpm disc. At the age of two I had been allowed to use the phonograph (automatic changer) and I had quickly learned to identify all the recordings by the appearance of the records. I did not rely on the color and design of the labels so much as on the configuration of the eccentric circles, descending spirals (as I think they are called), and the introducing spiral at the outer edge of the disc. The size and grain or packing of the playing grooves also differed, as did their reflectivity or texture, which can also be used to locate vocal and instrumental sections of an arrangement. I could even identify records stacked on the changer by the individual differences in the appearance of the edges.

It is much more difficult to see the texture differences in the 33 rpm lp's, but it is conceivable that in a limited, defined repertoire of classical music that has more or less fixed arrangements that apply, regardless of who performs a given piece, a person could be so familiar with his material that he could do quite well at identifying selections by the pattern of texture differences that show in differing segments according to volume, instrumentation, etc.

Norman P. Carlson
Jamestown, N.Y.

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